6 Deep Learning to Classify Pulmonary Infectious Diseases

Dora-Luz Flores, Ricardo Perea-Jacobo, Miguel Angel Guerrero-Chevannier
Universidad Autónoma de Baja California

Rafael Gonzalez-Landaeta
Universidad Autónoma de Ciudad Juarez, Universidad Autónoma de Baja California

Raquel Muñiz-Salazar
Universidad Autónoma de Baja California

CONTENTS

6.1 INTRODUCTION

Pulmonary infectious diseases, such as COVID-19 and tuberculosis (TB), are a significant cause of morbidity and mortality worldwide. Timely and accurate diagnosis is critical to ensure appropriate treatment and prevent disease transmission. Deep learning, a subset of machine learning, has shown promise in various medical

applications, including image analysis and classification. In recent years, there has been increasing interest in using deep learning techniques to classify pulmonary infectious diseases using chest radiographs (CRX) or computed tomography (CT) scans. By training deep learning algorithms on large datasets of annotated medical images, these models can learn to accurately classify different types of pulmonary infections, allowing for more efficient and accurate diagnosis. This approach has the potential to improve patient outcomes, reduce healthcare care costs, and improve public health efforts by facilitating early detection and treatment of lung infections.

Deep learning models can be trained on large data sets of annotated medical images, allowing them to identify patterns and features that are characteristic of different types of lung infections. For example, a deep-learning model can learn to recognize the presence of infiltrates, nodules, or cavities in CRX or CT scans that are indicative of specific types of pulmonary infections. Furthermore, deep learning models can continuously learn and improve their diagnostic accuracy over time as they are exposed to more data. This means that as more medical images are available for training, deep-learning models can become even more accurate in their diagnosis of pulmonary infections.

6.2   COUGH MONITORING AND ANALYSIS

Coughing is considered a defense mechanism by which the body expels secretions or any blockage that restricts the passage of air in the upper airways. The causes of coughing can be environmental (dust, smoke), bacteria, viruses, or some chronic or acute health condition [412]. In several respiratory diseases, cough is one of the main symptoms, and depending on the type of cough, it is possible to obtain a clinical diagnosis. The cough has different characteristics that can give information about the severity of a certain disease, including disease identification. Among the main attributes of cough are intensity, frequency, duration, and pattern [489]. In patients with TB, for example, the pattern of coughing depends on the amount of M. tuberculosis present in the lungs [733]. Also, it has been possible to diagnose COVID-19 in asymptomatic patients using Artificial Intelligence (AI) on the record of a forced cough [327].

There are some criteria to classify cough. According to the resistance, which indicates the duration of the cough, it is classified as acute (less than 3 weeks), subacute (3-8 weeks), and chronic (more than 8 weeks). According to its sound, which is due to the sudden expulsion of air, the cough is classified as dry or wet. In patients with TB and chronic obstructive pulmonary disease (COPD), the majority experience a chronic, wet cough, while in patients with COVID-19, or with exacerbation of asthma, acute and dry cough predominates [262]. It can then be seen that the cough produces characteristic sounds that help identify some respiratory diseases.

The cough is compounded by two sounds and an intermediate stage between them. The first sound provides information about the peripheral airways at the level of the tracheal bifurcation, the second sound provides information about the larynx, and the intermediate zone reflects the processes in the trachea [313]. The duration and intensity of each of these stages will depend on the respiratory health condition of the subject, as shown in Figure 6.1.
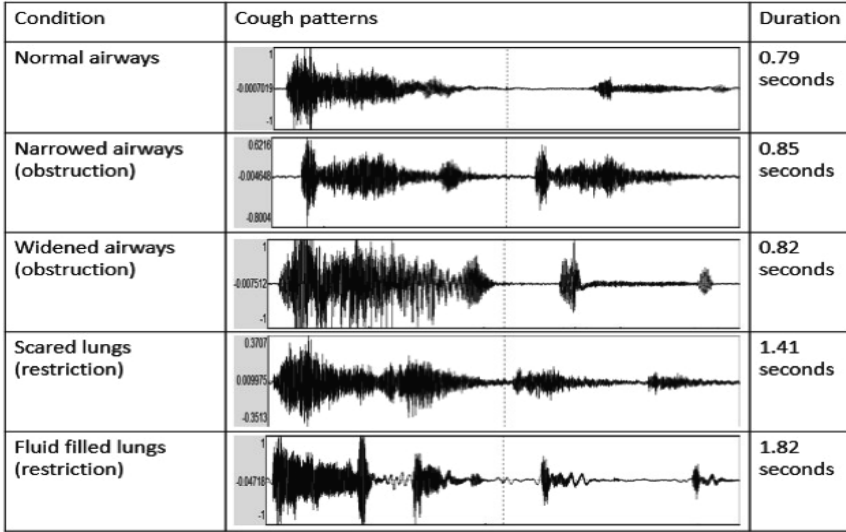
Condition	Cough patterns	Duration
Normal airways		0.79 seconds
Narrowed airways (obstruction)		0.85 seconds
Widened airways (obstruction)		0.82 seconds
Scared lungs (restriction)		1.41 seconds
Fluid filled lungs (restriction)		1.82 seconds

Figure 6.1   Pattern of cough sounds. Reprinted from (Rudraraju et al., 2020) with permission from Elsevier.

There are medical devices that detect cough in hospital environments, such as spirometers, and pneumotachographs, among others. However, these devices require special skills to operate and use procedures that are performed in controlled environments, giving short-term information, which makes it difficult to observe the evolution of the disease or the effectiveness of treatment. Carrying out continuous or periodic measurements on an outpatient basis, and in real-time, would allow coughing to be recorded for prolonged periods, helping to assess the progress of the disease. In this sense, there are ambulatory cough monitoring systems that allow 24-h records to be obtained. Among them are the Leicester monitor [408] and the Cayetano monitor [490]. These devices have a microphone and an audio recorder, which stores the data of the cough sounds so that they can be analyzed later. In the case of the Leicester monitor, the data is stored in .mpeg format, while in the Cayetano monitor the data is stored in .mp3 format.

Some proposals detect cough in non-hospital conditions for longer than 24 hours using the wearable paradigm. Because coughing causes a turbulent flow of air in the airways, the vibrations that this flow produces in the upper airways can be measured. In this sense, some proposals use piezoelectric or piezoresistive flexible films, which are attached to the subject's throat and thorax to measure the vibrations produced by coughing [31, 373]. Although it is a proposal allowing real-time measurements, its long-term use can cause discomfort in the subject because an object must be attached to the skin at the throat or thorax level. There are proposals that detect the sounds of coughing more comfortably. One of the best-known systems is the LifeShirt^{TM} (Vivometrics) [577], which is a jacket with multiple sensors that allow the detection of several cardiac and respiratory parameters. This system can detect cough sounds,

thanks to the addition of a microphone placed near the throat. LifeShirt^{TM} has been used to detect cough in COPD outpatients for 24 hours with a sensitivity and specificity of 78.1% and 99.6%, respectively [133]. Other simpler approaches use microphones incorporated into wearable electronic stethoscopes [373] or use microphones that are integrated into smartphones [641]. Smartphones have been used to detect biomarkers related to COVID-19, and lower respiratory tract infections [65]. Also, to discriminate TB coughs from COVID-19 and healthy coughs [464]. However, the drawback of using microphones is that cough sounds are superimposed on environmental sounds, which often require complex algorithms to reliably extract cough characteristics.

From the signal point of view, cough sounds have frequency components that can vary according to the state of health of the respiratory tract. In healthy subjects, cough sounds range from 300 Hz to 500 Hz; however, these frequencies may increase up to 1200 Hz in subjects with bronchitis [313]. Cough sounds can be analyzed in the time domain using their amplitude-time characteristics, or in the frequency domain. The spectrogram of cough sounds has also been used to extract their characteristics using AI algorithms [733].

There are several characteristics of cough sounds that provide information about various respiratory diseases, but these characteristics are not audible to the human ear. In that sense, various AI-based algorithms have been developed that analyze these characteristics. Among the most widely used spectral characteristics are the Mel-Frequency Cepstral Coefficients (MFCC) [28, 69, 116, 412], Mel-Scaled Spectrogram, Tonal Centroid, Chromagram, Spectral Contrast [116], and Log Spectral Energies [69]. Regarding the classifiers, there are different points of view about their performance. In TB patients, the rapid increase in signal energy has been used to be able to differentiate the cough from the voice signal [620]. The algorithm detected cough and non-cough events using classifiers based on machine learning (ML) algorithms. Multilayer perceptrons (MLP), machine support vectors (SVM), and minimum sequential optimization (SMO) were compared. They chose SMO for its simplicity, obtaining a sensitivity of 81% and false positives of 3.3/hour. The algorithm was able to detect a reduction in cough events in 28 patients with drug-sensitive TB. Some works have compared the Log Spectral Energies with MFCC in short-term recordings of cough in subjects with TB, to then apply classifiers through statistical models using linear regression, Hidden Markov Models (HMM), and Decision Trees [69]. In this study, cough could be distinguished between TB and healthy subjects with an accuracy of 80% and a specificity of 95%. MFCCs discard information that is useful for classifying sounds, so their accuracy was only 63% and their specificity was 80%. Linear regression has been used as a classifier to differentiate cough from non-cough in various respiratory diseases, including COVID-19 and TB, and to differentiate the cough from other sounds present in the environment. Artificial neural networks (ANN) and Random Forests (RF) have been also used as classifiers in cough sounds detected by spirometry [28]. In patients with COVID-19, it has been possible to diagnose the disease from the sounds of coughing in symptomatic and asymptomatic subjects. Chowdhury et al. (2022) used different ML classifiers to

distinguish patients with COVID-19. The classifiers based on Extra-Trees, HGBoost, and RF showed the best performance, obtaining accuracies of the order of 87%

6.3   ELECTROCARDIOGRAM MONITORING AND ANALYSIS

The electrocardiogram (ECG) is the representation of the bioelectric potentials of cardiac cells. It is composed of several waves (P, Q, R, S, T) that describe the depolarization (electrical activity before contraction) and repolarization (recovery after depolarization) of the atria and ventricles. In summary, the P-wave represents the depolarization of the atria, the QRS complex represents the depolarization of the ventricles and repolarization of the atria, and the T-wave represents the repolarization of the ventricles [116]. In addition, some intervals also provide information about the bioelectrical functioning of the heart. These intervals represent the time that elapses between two ECG waves. Said intervals are, RR, PQ, and QT. The RR interval provides information about the heart rate since it is the time that elapses between one beat and another. The PQ interval represents the time between the onset of atrial depolarization and the onset of ventricular depolarization. The QT interval is the time it takes for the ventricle to start to contract and to finish relaxing and is measured from the beginning of the Q wave to the end of the T wave [116]. The amplitude and duration of each of these waves, and the duration of the intervals provide information about the heart condition of a subject, therefore, any alteration in the ECG is an indication of a cardiac problem.

ECG detection for diagnostic purposes is carried out using 12 leads that are widely known in the literature [666]. These leads are I, II, III, aVR, aVL, aVF, and V1-V6. To do this, 10 electrodes are attached to the surface of the skin at different locations on the body. The 12-lead ECG is measured in clinical settings and is performed by qualified personnel; however, under these conditions, patterns or abnormalities in the ECG that can appear during daily activities are often not detected. In this sense, there are Holter systems that record the ECG continuously for 24–48 hours on an outpatient basis. However, they also require various electrodes that cause discomfort and need a specialist to place them on the subject. The importance of ECG detection during activities of daily living has driven the development of portable and wearable systems that detect long-term ECG comfortably and simply, and without the need for specific knowledge to use them. There are systems based on smartwatches [199], which detect lead I when used in the standard way, however, it has also been possible to detect leads II and V2 using a different configuration [580]. There are also systems based on mobile applications, such as the KardiaMobile® (ALIVECOR), which can obtain 6-lead medical grade records of the ECG (https://www.kardia.com/). Other wearable technologies, but less conventional, are embedded in objects such as glasses, bands, and patches [199, 540]. Figure 6.2 shows various wearable and portable systems capable of detecting multiparameter, including ECG in daily life.

There is evidence that some respiratory diseases produce ECG abnormalities. In subjects with COPD, the most common abnormalities are a rightward P wave axis ($\geq 70°$) and a rightward QRS axis ($\geq 90°$), as well as transient atrial and ventricular arrhythmias [516]. The presence of P pulmonale (a peaked P wave in lead II)

CENTRAL ILLUSTRATION: Wearable Monitoring Devices

Ambulatory Monitoring Capabilities

• ECG
• Heart Rate
• Arrhythmia
• Blood Pressure
• Cardio-Respiratory Fitness
• Stress
• Respiratory Rate
• Temperature
• Oxygen Saturation
• Ischemia
• Apnea

Devices for Ambulatory Monitoring

• Wristwatches
• Smartphones
• Patches
• Headbands
• Eye-glasses
• Necklaces

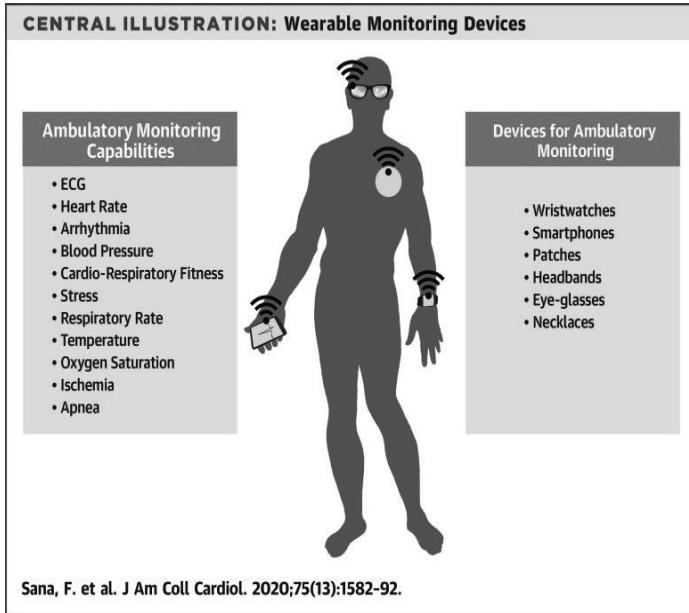Sana, F. et al. J Am Coll Cardiol. 2020;75(13):1582-92.

Figure 6.2 Depiction of wearable and smartphone-based solutions for continuous ambulatory cardiac monitoring, along with a summary of potential use cases. Reprinted from Sana et al. (2020) with permission from Elsevier.

is indicative of the severity of COPD even without the need for spirometry. COPD does not cause changes in the duration of the P wave, nor in the amplitude of the QRS complex [16]. On the other hand, there is evidence that P wave dispersion is a good predictor of COPD exacerbations. In the case of subjects with TB, although the disease itself does not cause significant changes in the electrocardiogram, certain drugs used for the treatment of TB cause a prolongation of the corrected QT interval (QTc) [227]. The QTc is used since the QT interval changes with the heart rate, so, this effect must be corrected. For this, several formulae have been proposed, namely, Bazett, Fridericia, Framingham, Hodges, and Rautaharju [636]. A prolonged QTc (450 ms in men, 460 ms in women) is an indicator of risk for Torsade de Pointe [202], which is a rare ventricular tachycardia and is also a potential indicator of sudden death. Therefore, long-term ECG monitoring is considered good practice in subjects receiving treatment for multidrug-resistant tuberculosis. Some ECG abnormalities have also been found in subjects with COVID-19. These include T-wave inversions [373, 410] and sinus tachycardia [379]. Prolongation of the QTc interval has also been found, but it is mainly caused by the different pharmacological treatments [410]. Some studies reveal alterations in the ST segment in subjects with COVID-19, specifically an elevation of this segment, which is due to coronary artery disease or heart muscle disease (myocarditis) [373]. ST segment deviations are also considered a predictive indicator of mortality risk in subjects with COVID-19 [330].

From all the ECG alterations caused by respiratory diseases, one of the most studied is the prolongation of the QTc interval due to the implications it has on the subject's life. Accurately estimating the QTc is not easy since it is necessary to identify the point where the end of the T-wave coincides with the isoelectric line. In situations where there are motion artifacts, this can be a difficult task. Commonly, the QTc is measured manually by a trained personal using printed or digital ECG recordings. QTc should be measured using leads II, V5, or V6, and should be estimated from the average of at least 3 beats [206]. Artificial intelligence for the QTc from the ECG recorded using the KardiaMobile® device (ALIVECOR) has been proposed. Using deep neural networks (DNN), it was possible to estimate the QTc with a specificity of 94.4%, making it an effective method to estimate congenital or acquired prolongation of the QTc [202]. The algorithm was trained, tested, and validated on more than 1.6 million 12-lead ECG records from 538,200 subjects. These types of tools can be helpful for subjects with TB and COVID-19 who are under drug treatment. There are other proposals that use the single-lead ECG, which is the one normally detected by smartwatches. Maille et al. (2021) used a deep convolutional neural network, composed of 11 U-net architectures with 11 convolutional layers and six residual blocks. The results showed a great similarity with the QTc measured manually in ECG recordings in leads II, V5 and V6, where a difference of 50 ms was obtained in 98.4% of the 85 patients who participated in the study.

There is a wide variety of artificial intelligence algorithms that have been used to detect abnormalities in the ECG recordings, especially arrhythmias. According to Saini and Gupta, the most popular are ANN, Fuzzy Systems, Neuro-fuzzy Systems, Genetic-Fuzzy Systems, Probabilistic Neural Networks (PNN), CNN, Support Vector Machines (SVMs), and Linear Discriminants (DNs) [537]. However, the most used in the extraction and classification of ECG characteristics are the CNNs due to their self-learning capacity.

Among the characteristics of ECG recordings, the most studied are the following: time-domain, frequency-domain, time-frequency domain, statistics features, and non-linear features. Commonly, these features are extracted from the raw ECG data, however, the generated ECG image has been used instead of the raw data to apply neural networks. The advantage of using images of ECG traces is that they can be captured by smartphones. Using heat maps helps the algorithm to focus on a certain area of the image to make decisions, which helps the clinician to find abnormalities in the ECG that may be indicative of COVID, TB, and other cardiac diseases [223,500]. Figure 6.3 shows the image of an abnormal ECG trace of a subject with COVID-19, where those areas where the abnormalities are highlighted, and that is where the algorithm should focus on making decisions.

6.4   CHEST RADIOGRAPHY AND DEEP LEARNING

There are numerous diagnostic methods for TB, each with advantages and limitations. Chest radiography (CXR) is one of the most used diagnostic tools to detect pulmonary TB [443]. We will discuss the benefits and disadvantages of using CXR for pulmonary TB diagnosis compared to other diagnostic techniques and how the combination of CXR with AI addresses its limitations.

Figure 6.3 Score-CAM visualization of abnormal (COVID-19) ECG. Taken from Rahman et al. (2022) with the permission of Springer Nature BV.

CXR is a relatively inexpensive, non-invasive, and widely available diagnostic tool that can provide valuable information on the presence and extent of TB-related lung abnormalities. It is beneficial for detecting characteristic lung parenchymal changes and the presence of cavitations indicative of active TB disease [322].

CXR has a reported sensitivity of 92% [72]; it can detect TB cases in early stages, even before characteristic symptoms occur, allowing to find individuals at high risk of developing the disease, such as close contact with patients with active disease or people from TB-endemic regions (2016). CXR can be used as a screening method. It can be applied in large groups to find individuals initially considered healthy, leading to rapid treatment and reduced disease transmission (2016). On the other hand, in recent years, there have been significant improvements in the portability of the equipment for taking CXR; currently, there is FDA-approved equipment with a weight of less than 4 kg, which makes them accessible to remote areas where there are no other diagnostic tests Table 6.1.

Although CXR is a useful diagnostic tool for pulmonary TB, it has some limitations that should be considered. CXR reports low levels of specificity; in practice, the CXR is examined and interpreted by a medical radiologist, so the process is subjective to the medical staff's experience. Different diseases show similar radiological patterns to pulmonary TB, leading to a high false-positive rate in people with other lung diseases or conditions, such as COPD or lung cancer [633]. One of the significant problems with CXR is the need for more trained radiologists available in low-resource areas, in conjunction with the absence of other diagnostic techniques, which play a significant role in the prevalence and spread of the disease [496].

Table 6.1

Characteristics of commercially available ultraportable X-ray equipment.

Manufacturer	Fujifilm	Delft
Model	FDR Xair	Light
Price(USD)	$ 47,000	$ 66,750
X-ray generator weight (kg)	3.5	7
Weight of complete system (kg)	29.4	33.2
Sockets per battery charge	100	200

AI has the potential to revolutionize medical care by improving diagnostic accuracy, efficiency, and access to care. In recent years, there has been growing interest in using AI to develop computer-aided diagnosis (CAD) systems to detect pulmonary TB [311]. CAD systems use machine learning algorithms to analyze medical images, such as chest X-rays or CT scans, and provide diagnostic results automatically [311].

AI-based CAD systems have several potential benefits for TB diagnosis. First, they can provide accurate and consistent diagnoses without a radiologist or trained medical professional, which is very helpful in resource-limited settings where access to trained medical professionals may be limited [493]. Second, AI-based CAD systems can improve diagnostic efficiency by reducing the time required for image interpretation and diagnosis, increasing the throughput of diagnostic services, reducing waiting times, and improving patient outcomes. Third, AI-based CAD systems can help reduce diagnostic errors and improve the accuracy of TB diagnosis, leading to better patient outcomes [493]. On the other hand, AI-based CAD systems have the potential to be used for active screening of people at high risk for TB, identifying early TB cases, leading to prompt treatment and reduced disease transmission [266]. AI-based CAD systems can also monitor disease progression and response to treatment, providing valuable information for patient management and care [321].

One of the main problems of commercially available CAD systems for pulmonary TB diagnosis is their high cost; an InferRead DR software license costs USD 5,552, including installation service and support, while a CAD4TB license costs USD 28,475, including installation service and support for three years [495]. The high costs of commercial systems make it difficult for them to be acquired and implemented in high-burden countries, so developing new CAD systems to support TB diagnosis is a viable option. An example is the MIA-TB RX UABC system [218], developed by the Autonomous University of Baja California in collaboration with the Tijuana Tuberculosis Clinic and Laboratory, which serves patients in northwestern Mexico. This CAD system was developed by implementing pre-trained convolutional neural networks using CXR radiographic images of patients collected over two years. It can classify radiographs into three categories: TB, normal, or other pathology. The system obtained a sensitivity value of 1.0 and an accuracy of 0.92 for pulmonary TB Table 6.2

Table 6.2

Characteristics of the software currently available on the market.

Company	Delft Imaging Systems	Infervision	JLK	Lunit	Qure.ai	RadiSen
Country	The Netherlands	Beijing, China	Seoul, Republic of Korea	Seoul, Republic of Korea	Mumbai, India	Seoul, Republic of Korea
Product	CAD4TB	InferRead DR Chest	JLD-02K	Lunit INSIGHT CXR	qXR	AXIR
Version	7	1.0	1.0	3.1.0.0	3.0	1.1.2.2
Intended Age Group (years)	4+	16+	10+	6+	6+	16+
Chest X-ray image format input	DICOM, PNG, JPEG	DICOM, PNG, JPEG	DICOM, PNG, JPEG	DICOM	DICOM, PNG, JPEG	DICOM
Chest X-ray type input	PA	AP/PA	AP/PA	AP/PA	AP/PA	PA
Output	Abnormality score for TB, Heat map, Binary classification "TB" or "not TB"					
Product Development Method	Supervised deep learning (CNN, RNN) plus manual feature engineering	Supervised deep learning (CNN, RNN)	Supervised deep learning (CNN, DBNs)	Supervised deep learning (CNN)	Deep learning to analyse chest X-ray scans.	Supervised deep learning (CNN)

In conclusion, CXR is a useful diagnostic tool for pulmonary TB, particularly in resource-limited settings where other diagnostic techniques may not be available or affordable. CXR can provide valuable information on the presence and extent of TB-related lung abnormalities and can be used to detect TB in high-risk individuals. However, CXR has some limitations, such as the possibility of false-positive results when the interpreting physician confuses other pulmonary pathologies. AI-based CAD systems have the potential to revolutionize TB diagnosis by reducing the limitations of CXR alone, thereby providing accurate, efficient, and consistent diagnostic results.

6.5   NEXT-GENERATION SEQUENCING IN THE DIAGNOSIS OF INFECTIOUS LUNG DISEASES

Next-generation sequencing (NGS) is a high-throughput sequencing technique that has revolutionized the field of genomics and transcriptomics. This technology involves the fragmentation of DNA or RNA into small pieces that are simultaneously amplified and sequenced into thousands or even millions of fragments. The next-generation sequencing process generates a large amount of data that are processed by bioinformatics algorithms to reconstruct the complete genome or transcriptome [37, 567].

NGS has become a fundamental tool in the study of genetic diversity and evolution of microorganisms, allowing the identification of mutations and genetic variations associated with diseases and the elucidation of complex metabolic pathways and gene regulatory networks [512, 585].

The ability to sequence large amounts of genetic material in a short period of time is one of the main advantages of next-generation sequencing compared to traditional sequencing techniques. Furthermore, NGS has enabled an exponential increase in the identification of genetic causes in rare diseases and heterogeneous disorders. NGS is used in research and clinical settings, accelerating diagnosis, and reducing costs. Despite the enthusiasm, there are limitations in coverage and accuracy and challenges in the interpretation of variants and ethical issues. There is a need to define quality and control standards in NGS to further improve its application for the benefit of patients [375].

In the study of bacterial genomics, next-generation sequencing has allowed the characterization of the genetic diversity of *Mycobacterium tuberculosis* populations, which has facilitated the identification of strains associated with resistance to anti-tuberculosis drugs. In addition, NGS has improved the detection and diagnosis of tuberculosis by identifying mutations and genetic variations associated with disease, characterizing the genetic diversity of populations of microorganisms, and elucidating complex metabolic pathways and gene regulatory networks [458, 541, 649].

6.5.1   MOST WIDELY USED SEQUENCING TECHNOLOGIES

NGS technologies have become valuable tools in the diagnosis of infectious lung diseases. Bioinformatics processes in NGS significantly influence disease management and patient care. Lack of standardization leads to variability in bioinformatics procedures, generating inaccurate results that affect patient care. Therefore, in recent years, several guidelines have been proposed to homogenize processes and standardize knowledge of bioinformatics data management [307, 530]. Among the most widely used technologies are Illumina, Ion Torrent, PacBio, and Oxford Nanopore. All these technologies are used in the diagnosis of infectious lung diseases to identify respiratory pathogens, detect mutations associated with antibiotic resistance and characterize the genetic diversity of pathogens. The main features, advantages and disadvantages, and specific applications of each of these technologies are described in Table6.3.

NGS technologies are valuable tools in the diagnosis of infectious lung diseases. Each of these technologies has its own advantages and disadvantages, and their specific application depends on the type of analysis required. They are constantly changing and being updated, so these descriptions of their advantages and disadvantages can quickly become obsolete. It is necessary to constantly update their performance and recommended implementations. The choice of the appropriate technology will depend on factors such as the complexity of the genome, the length of sequences required, and the available budget.

6.5.2   SEQUENCING DATA PROCESSING AND ANALYSIS

NGS data analysis is a complex process that requires the use of advanced bioinformatics tools for processing, alignment, and identification of genetic variants. The WHO recently published a technical guide for workflow in NGS of *Mycobacterium tuberculosis* . It is mainly structured in four steps DNA extraction and quality control, DNA library preparation, Sequencing, Data Analysis [458]. Since the first three steps vary depending on access to the sequencing platform, available budget, available sample quality, and the desired quality of the output files, we proceed with general comments on the process of analyzing the raw sequencing data. The analysis process begins with obtaining raw sequencing data, which undergo a series of steps before they can be analyzed.

The first step in sequencing data processing is the removal of low-quality sequences and filtering of adapter and contaminant sequences. This is done using quality control programs such as FastQC or Trim Galore, which can identify and remove low-quality sequences and filter out adapter and contaminant sequences [33, 319]. Once low-quality sequences have been removed and adapter and contaminant sequences have been filtered out, sequences are aligned to a genomic or transcriptomic reference using alignment programs such as Bowtie or BWA [144]. This allows the identification of genetic variants and characterization of the genetic diversity of pathogens.

There are several alignment programs available (Bowtie, BWA, HISAT2, TopHat, and other). Each of these programs has its own features and advantages, and the choice of the appropriate alignment program will depend on the type of sequencing data and the purpose of the analysis.

The next step is the identification of genetic variant using bioinformatics tools such as GATK, FreeBayes or SAMtools, or pipelines as MTBseq, which allow the identification of SNPs (Single Nucleotide Polymorphisms), indels and other types of genetic variants. These tools can also be used to identify mutations associated with antibiotic resistance. This program may differ in their ability to detect different types of variants, such as SNPs, indels, and other types of structural variants. These programs use different approaches for the identification of SNPs, such as the comparison of read sequences with a reference genome or the detection of base changes in the alignment of reads [138, 144, 308, 344, 409, 634].

Indels (insertions and deletions) are variants that involve the insertion or deletion of one or more nucleotides in a DNA sequence. The identification of indels can be more difficult than the identification of SNPs, due to the greater complexity of the

Table 6.3
Next-Generation Sequencing technologies

Platform	Key features	Advantages	Disadvantages	Ref.
Illumina	Sequencing technology based on DNA strand synthesis. It uses DNA cluster amplification to generate large amounts of short, high quality DNA sequences. Sequencing products are read simultaneously on millions of DNA fragments using a fluorescent camera system.	Is a high-throughput sequencing technology with high accuracy and reproducibility. It can generate large amounts of data in a short period of time at relatively low cost. The read length is suitable for genetic variant analysis and mutation detection in pathogens.	The read length is limited and does not allow sequencing of longer genomic regions. In addition, there may be problems in sequence alignment due to the high homology between some genomic regions.	[426]
Ion GeneStudio S5 System and the Ion Torrent Genexus System.	A sequencing technology based on the detection of protons released during DNA strand synthesis. It uses DNA cluster amplification to generate high-quality short DNA sequences. Sequencing products are read sequentially using a pH sensor system.	Fast, accurate and easy-to-use sequencing technology. It allows sequencing of short DNA fragments and can detect genetic variants and mutations in pathogens.	Sequencing quality may be affected by the presence of homopolymers, and the number of read errors may increase in repetitive regions.	[328]
PacBio	Sequencing technology based on the detection of fluorescent light generated during DNA strand synthesis. It uses real-time DNA amplification to generate long DNA sequences with high quality.	High-quality sequencing technology that can generate long DNA sequences with high quality, allowing the resolution of complex genomic regions and the identification of genetic variants. It is also capable of detecting epigenetic modifications.	Expensive sequencing technology that requires a large amount of data to generate reliable results. In addition, the sequencing error rate can be high in regions with high homology.	[4, 497]
Oxford Nanopore	Sequencing technology based on the detection of electrical currents generated by the interaction between DNA and pores in a membrane. It uses nanopores to directly sequence DNA molecules without amplification	Portable, real-time sequencing technology that can generate long DNA sequences. It allows the detection of epigenetic modifications and the identification of genetic variants in real time.	Sequencing error rate can be high, especially in repetitive or high-homology regions. In addition, sequencing quality can be affected by the presence of contaminants and genome complexity.	[385]

regions containing indels and the variability in their size. Programs such as GATK and VarScan are commonly used for the identification of indels from sequencing data. These programs use different methods for indel identification, such as comparison of read sequences with a reference genome, identification of misaligned read

positions or detection of base read imbalances [306, 409].

In addition to SNPs and indels, there are other types of genetic variants that can be detected by next-generation sequencing data analysis programs. For example, structural variants, which include inversions, translocations, and duplications, can be detected by programs such as Delly, Lumpy, Manta, Visor among others [66, 108, 332, 508]. However, adequate detection of sequence copy number changes remains a challenging problem. Recently published machine learning approaches suggested that it is more effective than standard methods at accurately detecting sequence copy number changes in lower quality or coverage next-generation sequencing data, and is equally powerful in high-coverage data, including the identification of novel CNVs in genomes previously analyzed for CNVs using long-read data [244].

6.5.3 APPLICATIONS OF NEXT-GENERATION SEQUENCING IN THE DIAGNOSIS OF INFECTIOUS PULMONARY DISEASES

Identification of differential gene expression and analysis of genetic diversity are two important approaches in *Mycobacterium tuberculosis* research. In Mtb, identification of differential gene expression is often performed using next-generation RNA sequencing (RNA-Seq) technologies. RNA-Seq data can be analyzed techniques, such as differential cell lysis, probe-based ribosomal depletion, and genome-wide metabolic network analysis, scientists can investigate the regulatory networks and gene expression patterns of Mtb and its host during infection to identify genes that are over- or under-expressed compared to control conditions. This approach has been used to investigate the molecular mechanisms underlying M. tuberculosis virulence, drug resistance, and host immune response [131, 188, 390, 420, 734].

Analysis of the genetic diversity of M. tuberculosis involves the analysis of genetic variation within and between populations of the bacterium. This can be accomplished by analyzing the DNA sequence of multiple strains of M. tuberculosis. Next-generation sequencing data are often used to generate complete or partial genomes of M. tuberculosis strains. These genomes can be compared to identify mutations and genetic variations that occur in different strains. Genetic diversity analysis is used to understand the epidemiology of tuberculosis, including the spread of drug-resistant strains, the identification of new emerging strains, and the evolutionary history of the bacterium [274, 392, 402, 449, 452, 541, 542, 546, 653].

6.5.4 INTEGRATION OF DEEP LEARNING AND NEXT-GENERATION SEQUENCING FOR TB DIAGNOSIS

NGS enables rapid and accurate identification of Mtb bacteria in sputum samples and other body fluids. While deep learning enables rapid analysis of large genomic datasets to identify patterns of genetic variation and classify Mtb strains. The use of these techniques could allow a faster and more accurate diagnosis of TB, which could help reduce the spread of the disease and improve treatment outcomes. In addition,

it could be a useful tool for monitoring disease progression and identifying potential drug-resistant strains [274].

Recently, WHO has published and endorsed the first catalog of resistance-associated genetic variants based on more than 38,000 MTBC isolates to predict clinically relevant resistance phenotypes from genetic data. This mutation catalog provides a common, standardized reference for the interpretation of resistance to all first-line drugs (RIF, INH, ethambutol, and pyrazinamide) and also to second-line group A drugs (levofloxacin , moxifloxacin , bedaquiline, and linezolid), group B (clofazimine), and group C (delamanid, amikacin , streptomycin, ethionamide, and prothionamide [457].

Barely a year later, the Comprehensive Resistance Prediction for Tuberculosis: an International Consortium (CRyPTIC) has published a compendium of data from 12,289 global clinical isolates of *Mycobacterium tuberculosis* , all of which have been subjected to whole genome sequencing and measured for their minimum inhibitory concentrations against 13 antituberculosis drugs processed uniformly in 23 countries in a single assay. This is the largest matched phenotypic and genotypic dataset of Mtb to date. The compendium contains 6,814 isolates resistant to at least one drug, including 2,129 samples that fully meet the clinical definitions of rifampicin-resistant (RR), multidrug-resistant (MDR), pre-extensively drug-resistant (pre-XDR) or extensively drug-resistant (XDR). This combination of an extensive catalog and open availability of an immense amount of data provides an ideal framework for the development of artificial intelligence implementations, especially deep learning [128, 129].

Several investigations have addressed the processing of genome datasets with machine learning techniques [39, 146, 287, 315, 694]. However, most with smaller scale sets than those recently published. With the recent increase in the availability of massive data, a trend to explore deep learning-based solutions can be observed. Moving from the predominance of machine learning classification models (Support Vector Machine, Random Forest, and ensemble models, etc.) to solutions based on deep learning, (convolutional networks, LSTM, GRU, ANN, etc.) [106, 269, 273, 534].

These technologies can also be used to develop new diagnostic approaches, such as early detection of TB. However, the integration of these technologies also presents challenges. Adequate computational infrastructure is needed to process large amounts of sequencing and phenotypic data. In addition, it is important to validate the results in clinical studies to ensure their accuracy and reliability.

6.6 LIMITATIONS

First, deep learning models rely on large amounts of high-quality annotated data for training. However, such data may not always be readily available, particularly in low-resource settings. Additionally, data quality can vary, which may affect the accuracy of the model's diagnosis.

Secondly, deep learning models can be limited by the scope of the data they are trained on. If a model is trained on a specific set of medical images, it may not be able

to accurately diagnose pulmonary infections that present differently or have atypical features.

Third, deep-learning models are often considered "black boxes" because they are highly complex and difficult to interpret. This can make it difficult to understand how the model arrived at its diagnosis, which can be problematic for healthcare professionals who need to justify their diagnoses to patients or other healthcare providers.

Lastly, there may be ethical and legal concerns related to the use of deep learning for medical diagnosis. For example, if a deep learning model produces a false-positive or false-negative diagnosis, this may lead to unnecessary treatments or missed diagnoses, respectively, which can have serious consequences for patients.

6.7 CONCLUSIONS

Timely and accurate diagnosis is essential in treating and preventing the spread of pulmonary infectious diseases like COVID-19, COPD, and TB, which are significant causes of illness and death globally. Deep learning, a machine learning type, has proven useful in medical applications, particularly in analyzing and classifying biosignals and medical images. More recently, there has been growing interest in using deep learning techniques to diagnose pulmonary infections by analyzing cough signals, the ECG, chest radiographs, or computed tomography scans. By training deep learning algorithms on large medical datasets, these models can learn to accurately classify different types of pulmonary infections, leading to more efficient and accurate diagnosis. This improves patient outcomes by enabling early detection of lung infections and enhancing the effectiveness of treatments. Machine learning can also be used to predict drug resistance by summarizing the predictive ability of various factors. This can aid in clinical decision-making and detect single nucleotide polymorphisms as whole genome sequencing data increases.

References

1. Opencv ai competition 2021: An international ai competition celebrating opencv's 20th anniversary. `https://opencv.org/opencv-ai-competition-2021/`. Accessed on June 1, 2023.

2. Machine learning un python, 2022. `https://www.scikit-learn.org`.

3. Huamán Palma. R. A. Diseño de un sistema de ampliación de cobertura celular para las bandas de frecuencia en 850 MHz y 1900 MHz. 2018.

4. Rhoads A. and K. F. Au. Pacbio sequencing and its applications. *Genomics, Proteomics and Bioinformatics*, 13:278–289, 2015.

5. Bardia Abbasi and Daniel M. Goldenholz. Machine learning applications in epilepsy. *Epilepsia*, 60(10):2037–2047, 2019.

6. Sherif I. Abdelmaksoud, Musa Mailah, and Ayman M. Abdallah. Control strategies and novel techniques for autonomous rotorcraft unmanned aerial vehicles: A review. *IEEE Access*, 8:195142–195169, 2020.

7. Gh Abdi, F. Samadzadegan, and F. Kurz. Pose estimation of unmanned aerial vehicles based on a vision-aided multi-sensor fusion. *International Archives of the Photogrammetry, Remote Sensing & Spatial Information Sciences*, 41, 2016.

8. Sarah N. Abdulkader, Ayman Atia, and Mostafa-Sami M. Mostafa. Brain computer interfacing: Applications and challenges. *Egyptian Informatics Journal*, 16(2):213–230, 2015.

9. I. Abraham, S. Ren, and R. E. Siferd. Logistic function based memristor model with circuit application. *IEEE Access*, 7:166451–166462, 2019.

10. U. Rajendra Acharya, S. Vinitha Sree, G. Swapna, Roshan Joy Martis, and Jasjit S. Suri. Automated eeg analysis of epilepsy: A review. *Knowledge-Based Systems*, 45:147–165, 2013.

11. Amit Adam, Ehud Rivlin, Ilan Shimshoni, and Daviv Reinitz. Robust real-time unusual event detection using multiple fixed-location monitors. *IEEE transactions on pattern analysis and machine intelligence*, 30(3):555–560, 2008.

12. I. A. B. Adames, J. Das, and S. Bhanja. Survey of emerging technology based physical unclonable funtions. In *Int. Great Lakes Symposium on VLSI (GLSVLSI)*, pages 317–322. IEEE, 2016.

13. Michal Adamkiewicz, Timothy Chen, Adam Caccavale, Rachel Gardner, Preston Culbertson, Jeannette Bohg, and Mac Schwager. Vision-Only Robot Navigation in a Neural Radiance World. *IEEE Robotics and Automation Letters*, 7(2):4606–4613, April 2022. Conference Name: IEEE Robotics and Automation Letters.

14. Pranav Adarsh, Pratibha Rathi, and Manoj Kumar. Yolo v3-tiny: Object detection and recognition using one stage improved model. In *2020 6th International Conference on Advanced Computing and Communication Systems (ICACCS)*, pages 687–694, 2020.

15. Revant Adlakha, Wansong Liu, Souma Chowdhury, Minghui Zheng, and Mostafa Nouh. Integration of acoustic compliance and noise mitigation in path planning for drones in human–robot collaborative environments. *Journal of Vibration and Control*, 2023; Vol. 29, No. 19-20, PP. 4757–4771. doi:10.1177/10775463221124049.

16. R. Agarwal, D. Kumar, G. Sandhu, D. Agarwal, and G. Chabra. Diagnostic values of electrocardiogram in chronic obstructive pulmonary disease (copd). *Lung India*, 25:78–81, 2008.

17. D. S. Aguila-Torres, J. A. Galaviz-Aguilar, and J. R. Cárdenas-Valdez. Reliable comparison for power amplifiers nonlinear behavioral modeling based on regression trees and random forest. In *2022 IEEE International Symposium on Circuits and Systems (ISCAS)*, pages 1527–1530, 2022.

18. O. A. Aguirre-Castro, E. E. García-Guerrero, O. R. López-Bonilla, E. Tlelo-Cuautle, D. López-Mancilla, J. R. Cárdenas-Valdez, J. E. Olguín-Tiznado, and E. Inzunza-González. Evaluation of underwater image enhancement algorithms based on retinex and its implementation on embedded systems. *Neurocomputing*, 494:148–159, 7 2022.

19. Oscar Adrian Aguirre-Castro, Everardo Inzunza-González, Enrique Efrén García-Guerrero, Esteban Tlelo-Cuautle, Oscar Roberto López-Bonilla, Jesús Everardo Olguín-Tiznado, and José Ricardo Cárdenas-Valdez. Design and construction of an rov for underwater exploration. *Sensors (Switzerland)*, 19, 12 2019.

20. Hyohoon Ahn, Duc Tai Le, Thien Binh Dang, Siwon Kim, and Hyunseung Choo. Hybrid noise reduction for audio captured by drones. In *Proceedings of the 12th International Conference on Ubiquitous Information Management and Communication*, pages 1–4, 2018.

21. Airvant. Dron: Inventario: Inteligencia artificial: Almacén. `https://www.airvant.es/`. Accessed on June 1, 2023.

22. Alfonso Alcántara, Jesús Capitán, Rita Cunha, and Aníbal Ollero. Optimal trajectory planning for cinematography with multiple Unmanned Aerial Vehicles. *Robotics and Autonomous Systems*, 140:103778, June 2021.

23. S. Ali, S. Khan, A. Khan, and Amine B. Memristor fabrication through printing technologies: A review. *IEEE Access*, 2021.

24. Mansour Alkmim, João Cardenuto, Elisa Tengan, Thomas Dietzen, Toon Van Waterschoot, Jacques Cuenca, Laurent De Ryck, and Wim Desmet. Drone noise directivity and psychoacoustic evaluation using a hemispherical microphone array. *The Journal of the Acoustical Society of America*, 152(5):2735–2745, 2022.

25. Sam Allison, He Bai, and Balaji Jayaraman. Estimating wind velocity with a neural network using quadcopter trajectories. In *AIAA Scitech 2019 Forum*, page 1596, 2019.

26. Md Zahangir Alom, Tarek M. Taha, Christopher Yakopcic, Stefan Westberg, Paheding Sidike, Mst Shamima Nasrin, Brian C. Van Esesn, Abdul A. S. Awwal, and Vijayan K. Asari. The history began from alexnet: A comprehensive survey on deep learning approaches. *arXiv preprint arXiv:1803.01164*, 2018.

27. Mohammad H. Alomari, Aya Samaha, and Khaled AlKamha. Automated classification of l/r hand movement eeg signals using advanced feature extraction and machine learning. *arXiv preprint arXiv:1312.2877*, 2013.

28. K. Alqudaihi, N. Aslam, I. Khan, A. Almuhaideb, S. Alsunaidi, N. Ibrahim, F. Alhaidari, F. Shaikh, Y. Alsenbel, D. Alalharith, H. Alharthi, W. Alghamdi, and M. Alshahrani. Cough sound detection and diagnosis using artificial intelligence techniques: Challenges and opportunities. *IEEE Access*, 9:102327–102344, 2021.

29. Fahd A. Alturki, Khalil AlSharabi, Akram M. Abdurraqeeb, and Majid Aljalal. Eeg signal analysis for diagnosing neurological disorders using discrete wavelet transform and intelligent techniques. *Sensors*, 20(9), 2020.

30. Karim Amer, Mohamed Samy, Mahmoud Shaker, and Mohamed ElHelw. Deep convolutional neural network based autonomous drone navigation. In *Thirteenth International Conference on Machine Vision*, volume 11605, pages 16–24. SPIE, 2021.

31. J. Amoh and K. Odame. Technologies for developing ambulatory cough monitoring devices. *Critical Reviews? in Biomedical Engineering*, 41:457–468, 2013.

32. Vincent Andrearczyk and Paul F. Whelan. Using filter banks in convolutional neural networks for texture classification. *Pattern Recognition Letters*, 84:63–69, 2016.

33. S. Andrews. *Babraham Bioinformatics* https://www.bioinformatics.babraham.ac.uk/projects/fastqc/ Fastqc, 2010.

34. M. T. Arafin, C. Dunbar, G. Qu, N. McDonald, and L. Yan. A survey on memristor modeling and security applications. In *Sixteenth Int. Symp. on Quality Electronic Design*, pages 440–447. IEEE, 2015.

35. Edoardo Arnaudo, Fabio Cermelli, Antonio Tavera, Claudio Rossi, and Barbara Caputo. A contrastive distillation approach for incremental semantic segmentation in aerial images. In *Image Analysis and Processing–ICIAP 2022: 21st International Conference, Lecce, Italy, May 23–27, 2022, Proceedings, Part II*, pages 742–754. Springer, 2022.

36. P. Arno, F. Launay, J. M. Fournier, and J. C. Grasset. A simple method based on AM-AM, AM-PM measurements and CDMA signal statistics for RF power amplifier characterization. *The 2004 47th Midwest Symposium on Circuits and Systems, MWSCAS '04, Hiroshima, Japan*, 2004.

37. K. Athanasopoulou, M. A. Boti, P. G. Adamopoulos, P. C. Skourou, and A. Scorilas. Third-generation sequencing: The spearhead towards the radical transformation of modern genomics. *Life*, 12:1–22, 2022.

38. Sayantan Auddy, Jakob Hollenstein, Matteo Saveriano, Antonio Rodríguez-Sánchez, and Justus Piater. Continual learning from demonstration of robotic skills. *arXiv preprint arXiv:2202.06843*, 2022.

39. D. Aytan-Aktug, P. T. L. C. Clausen, V. Bortolaia, F. M. Aarestrup, and O. Lund. Prediction of acquired antimicrobial resistance for multiple bacterial species using neural networks. *mSystems*, 5:e00774–19, 2020.

40. Dejan Azinović, Ricardo Martin-Brualla, Dan B. Goldman, Matthias Nießner, and Justus Thies. Neural RGB-D Surface Reconstruction. In *2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 6280–6291, June 2022. ISSN: 2575-7075.

41. Sung Moon Bae, Kwan Hee Han, Chun Nam Cha, and Hwa Yong Lee. Development of inventory checking system based on uav and rfid in open storage yard. In *2016 International Conference on Information Science and Security (ICISS)*, pages 1–2. IEEE, 2016.

42. Fei Bai, Minghui Pang, Qiuming Zhu, Hanpeng Li, Xiaomin Chen, Weizhi Zhong, and Naeem Ahmed. A 3GPP-based height-dependent LoS probability model for A2G communications. In *2021 13th International Conference on Wireless Communications and Signal Processing (WCSP)*, pages 1–5, 2021.

43. Vassileios Balntas, Shuda Li, and Victor Prisacariu. Relocnet: Continuous metric learning relocalisation using neural nets. In *Proceedings of the European Conference on Computer Vision (ECCV)*, pages 751–767, 2018.

44. Peng Bao, Zonghai Chen, Jikai Wang, Deyun Dai, and Hao Zhao. Lifelong vehicle trajectory prediction framework based on generative replay. *arXiv preprint arXiv:2111.07511*, 2021.

45. Richard Barker. How many cctv cameras are in london?, 2022.

46. Jonathan T. Barron, Ben Mildenhall, Dor Verbin, Pratul P. Srinivasan, and Peter Hedman. Mip-NeRF 360: Unbounded Anti-Aliased Neural Radiance Fields. In *2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 5460–5469, June 2022. ISSN: 2575-7075.

47. Carla Barros, Carlos A. Silva, and Ana P. Pinheiro. Advanced eeg-based learning approaches to predict schizophrenia: Promises and pitfalls. *Artificial Intelligence in Medicine*, 114:102039, 2021.

48. Yakoub Bazi and Farid Melgani. Convolutional svm networks for object detection in uav imagery. *Ieee transactions on geoscience and remote sensing*, 56(6):3107–3118, 2018.

49. J. A. Becerra, M. J. Madero-Ayora, J. J. Reina-Tosina, C. Crespo-Cadenas, J. García-Frías, and G. Arce. A Doubly Orthogonal Matching Pursuit Algorithm for Sparse Predistortion of Power Amplifiers. *IEEE Microwave and Wireless Components Letters*, 28(8):726–728, 2018.

50. J. A. Becerra, A. Pérez-Hérnandez, M. J. Madero-Ayora, and C. Crespo-Cadenas. A Reduced-Complexity Direct Learning Architecture for Digital Predistortion Through Iterative Pseudoinverse Calculation. *IEEE Microwave and Wireless Components Letters*, 31(8):933–936, 2021.

51. Nejra Beganovic, Jasmin Kevric, and Dejan Jokic. Identification of diagnostic-related features applicable to eeg signal analysis. In *Annual Conference of the PHM Society*, volume 10, 2018.

52. Dinara Bekkozhayeva, Mohammadmehdi Saberioon, and Petr Cisar. Automatic individual non-invasive photo-identification of fish (sumatra barb puntigrus tetrazona) using visible patterns on a body. *Aquaculture International*, 29:1481–1493, 8 2021.

53. Yoshua Bengio, Yann Lecun, and Geoffrey Hinton. Deep learning for ai. *Communications of the ACM*, 64(7):58–65, 2021.

54. Diego Benjumea, Alfonso Alcántara, Agustin Ramos, Arturo Torres-Gonzalez, Pedro Sánchez-Cuevas, Jesus Capitan, Guillermo Heredia, and Anibal Ollero. Localization system for lightweight unmanned aerial vehicles in inspection tasks. *Sensors*, 21(17):5937, 2021.

55. Marius Beul, David Droeschel, Matthias Nieuwenhuisen, Jan Quenzel, Sebastian Houben, and Sven Behnke. Fast autonomous flight in warehouses for inventory applications. *IEEE Robotics and Automation Letters*, 3(4):3121–3128, 2018.

56. Hanwen Bi, Fei Ma, Thushara D Abhayapala, and Prasanga N Samarasinghe. Spherical sector harmonics based directional drone noise reduction. In *2022 International Workshop on Acoustic Signal Enhancement (IWAENC)*, pages 1–5. IEEE, 2022.

57. Luzheng Bi, Xin-An Fan, and Yili Liu. Eeg-based brain-controlled mobile robots: a survey. *IEEE transactions on human-machine systems*, 43(2):161–176, 2013.

58. Haoyu Bian, Qichen Tan, Siyang Zhong, and Xin Zhang. Assessment of uam and drone noise impact on the environment based on virtual flights. *Aerospace Science and Technology*, 118:106996, 2021.

59. Wenjing Bian, Zirui Wang, Kejie Li, Jia-Wang Bian, and Victor Adrian Prisacariu. NoPe-NeRF: Optimising Neural Radiance Field with No Pose Prior, December 2022. arXiv:2212.07388 [cs].

60. Osman Tayfun Bişkin, Cemre Candemir, Ali Saffet Gonul, and Mustafa Alper Selver. Diverse task classification from activation patterns of functional neuro-images using feature fusion module. *Sensors*, 23(7), 2023.

61. Z. Biolek, D. Biolek, and V. Biolkova. SPICE model of memristor with nonlinear dopant drift. *Radioengineering*, 18(2), 2009.

62. Hunter Blanton, Connor Greenwell, Scott Workman, and Nathan Jacobs. Extending absolute pose regression to multiple scenes. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops*, pages 38–39, 2020.

63. Hunter Blanton, Scott Workman, and Nathan Jacobs. A structure-aware method for direct pose estimation. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision*, pages 2019–2028, 2022.

64. Valts Blukis, Taeyeop Lee, Jonathan Tremblay, Bowen Wen, In So Kweon, Kuk-Jin Yoon, Dieter Fox, and Stan Birchfield. Neural Fields for Robotic Object Manipulation from a Single Image, October 2022.

65. M. Boesch, F. Rassouli, F. Baty, A. Schwärzler, S. Widmer, P. Tinschert, I. Shih, D. Cleres, F. Barata, E. Fleisch, and M. Brutsche. Smartphone-based cough monitoring as a near real-time digital pneumonia biomarker. *ERJ Open Research*, pages 518–2022, 2023.

66. D. Bolognini, A. Sanders, J. Korbel, A. Magi, V. Benes, and T. Rausch. Visor: a versatile haplotype-aware structural variant simulator for short- and long-read sequencing. *Bioinformatics*, 36:1267–1269, 2020.

67. J. J. Bongiorno. Real-frequency stability criteria for linear time-varying systems. *IEEE Proceedings*, 52(7):832–841, 1964.

68. Poomipat Boonyakitanont, Apiwat Lek-uthai, Krisnachai Chomtho, and Jitkomut Songsiri. A review of feature extraction and performance evaluation in epileptic seizure detection using eeg. *Biomedical Signal Processing and Control*, 57:101702, 2020.

69. G. Botha, G. Theron, R. Warren, M. Klopper, K. Dheda, P. Van Helden, and T. Niesler. Detection of tuberculosis by automatic cough sound analysis. *Physiol Meas*, 39:45005, 2018.

70. Rihab Bousseta, I. El Ouakouak, M. Gharbi, and F. Regragui. Eeg based brain computer interface for controlling a robot arm movement through thought. *Irbm*, 39(2):129–135, 2018.

71. R. N. Braithwaite. A Self-Generating Coefficient List for Machine Learning in RF Power Amplifiers using Adaptive Predistortion. *European Microwave Conference*, pages 1229–1232, 2006.

72. D. Branigan, S. Deborggraeve, M. Kohli, E. Maclean, L. Mckenna, and M. Ruhwald. Pipeline report-2021 tuberculosis diagnostics tuberculosis diagnostics. Technical report, Treatment Action Group, 2021.

73. L. Breiman. Classification and Regression Trees. *Routledge*, 2017.

74. Guillaume Bresson, Yu Li, Cyril Joly, and Fabien Moutarde. Urban localization with street views using a convolutional neural network for end-to-end camera pose regression. 2019.

75. A. Brihuega, M. Abdelaziz, L. Anttila, Y. Li, A. Zhu, and M. Valkama. Mixture of Experts Approach for Piecewise Modeling and Linearization of RF Power Amplifiers. *IEEE Transactions on Microwave Theory and Techniques*, 70(1):380–391, 2022.

76. Jeff Brown. Zbar bar code reader. `http://zbar.sourceforge.net/`. Accessed on June 1, 2023.

77. Clemens Brunner, Niels Birbaumer, Benjamin Blankertz, Christoph Guger, Andrea Kübler, Donatella Mattia, José del R. Millán, Felip Miralles, Anton Nijholt, Eloy Opisso, Nick Ramsey, Patric Salomon, and Gernot R. Müller-Putz. Bnci horizon 2020: towards a roadmap for the bci community. *Brain-Computer Interfaces*, 2(1):1–10, 2015.

78. Arunkumar Byravan, Jan Humplik, Leonard Hasenclever, Arthur Brussee, Francesco Nori, Tuomas Haarnoja, Ben Moran, Steven Bohez, Fereshteh Sadeghi, Bojan Vujatovic, and Nicolas Heess. NeRF2Real: Sim2real Transfer of Vision-guided Bipedal Motion Skills using Neural Radiance Fields, October 2022.

79. Aldrich A. Cabrera-Ponce, Manuel Martin-Ortiz, and José Martínez-Carranza. Continual learning for multi-camera relocalisation. In *Mexican International Conference on Artificial Intelligence*, pages 289–302. Springer, 2021.

80. Aldrich A. Cabrera-Ponce and J. Martinez-Carranza. Aerial geo-localisation for mavs using posenet. In *2019 Workshop on Research, Education and Development of Unmanned Aerial Systems (RED UAS)*, pages 192–198. IEEE, 2019.

81. Aldrich A. Cabrera-Ponce, J. Martinez-Carranza, and Caleb Rascon. Detection of nearby uavs using a multi-microphone array on board a uav. *International Journal of Micro Air Vehicles*, 12:1756829320925748, 2020.

82. Aldrich A. Cabrera-Ponce and Jose Martinez-Carranza. Convolutional neural networks for geo-localisation with a single aerial image. *Journal of Real-Time Image Processing*, 19(3):565–575, 2022.

83. Aldrich A. Cabrera-Ponce and José Martínez-Carranza. Onboard cnn-based processing for target detection and autonomous landing for mavs. In *Mexican Conference on Pattern Recognition*, pages 195–208. Springer, 2020.

84. Aldrich A. Cabrera-Ponce, Leticia Oyuki Rojas-Perez, Jesus Ariel Carrasco-Ochoa, Jose Francisco Martinez-Trinidad, and Jose Martinez-Carranza. Gate detection for micro aerial vehicles using a single shot detector. *IEEE Latin America Transactions*, 17(12):2045–2052, 2019.

85. Aldrich Alfredo Cabrera-Ponce, Manuel Isidro Martin-Ortiz, and Jose Martinez-Carranza. Multi-model continual learning for camera localisation from aerial images. In G. de Croon and C. De Wagter, editors, *13th International Micro Air Vehicle Conference*, pages 103–109, Delft, the Netherlands, Sep 2022. Paper no. IMAV2022-12.

86. Ming Cai, Chunhua Shen, and Ian D. Reid. A hybrid probabilistic model for camera relocalization. In *BMVC*, volume 1, page 8, 2018.

87. S. A. Campbell. The science of engineering of microelectronic fabrication. In *2nd ed. Oxford University in electrical and computer engineering*, pages 326–350. Oxford University Press, 2001.

88. Carlos Campos, Richard Elvira, Juan J. Gómez Rodríguez, José M. M. Montiel, and Juan D. Tardós. Orb-slam3: An accurate open-source library for visual, visual–inertial, and multimap slam. *IEEE Transactions on Robotics*, 37(6):1874–1890, 2021.

89. Leobardo Campos-Macías, Rodrigo Aldana-López, Rafael de la Guardia, José I. Parra-Vilchis, and David Gómez-Gutiérrez. Autonomous navigation of mavs in unknown cluttered environments. *Journal of Field Robotics*, 38(2):307–326, 2021.

90. Ang Cao and Justin Johnson. HexPlane: A Fast Representation for Dynamic Scenes, January 2023. arXiv:2301.09632 [cs].

91. Anh-Quan Cao and Raoul de Charette. SceneRF: Self-Supervised Monocular 3D Scene Reconstruction with Radiance Fields, January 2023. arXiv:2212.02501 [cs].

92. Junli Cao, Huan Wang, Pavlo Chemerys, Vladislav Shakhrai, Ju Hu, Yun Fu, Denys Makoviichuk, Sergey Tulyakov, and Jian Ren. Real-Time Neural Light Field on Mobile Devices, December 2022. arXiv:2212.08057 [cs].

93. Alexandra Carlson, Manikandasriram Srinivasan Ramanagopal, Nathan Tseng, Matthew Johnson-Roberson, Ram Vasudevan, and Katherine A. Skinner. CLONeR: Camera-Lidar Fusion for Occupancy Grid-aided Neural Representations, September 2022. arXiv:2209.01194 [cs].

94. Rita Carter. *The Human Brain Book: An Illustrated Guide to its Structure, Function, and Disorders*. Penguin, January 2019. Google-Books-ID: s8bhDwAAQBAJ.

95. Guilherme Carvalho, Ihannah Guedes, Milena Pinto, Alessandro Zachi, Luciana Almeida, Fabio Andrade, and Aurelio G. Melo. Hybrid PID-Fuzzy controller for autonomous UAV stabilization. In *2021 14th IEEE International Conference on Industry Applications (INDUSCON)*, pages 1296–1302, São Paulo, Brazil, August 2021. IEEE.

96. Pedro Castillo, Rogelio Lozano, and Alejandro Dzul. Stabilization of a mini rotorcraft with four rotors. *IEEE control systems magazine*, 25(6):45–55, 2005.

97. Pedro Castillo, Rogelio Lozano, and Alejandro E. Dzul. *Modelling and Control of Mini-Flying Machines*. Advances in Industrial Control. Springer-Verlag, London, 1 edition, 2005. https://doi.org/10.1007/1-84628-179-2.

98. Dylan Cawthorne and Peter Møller Juhl. Designing for calmness: Early investigations into drone noise pollution management. In *2022 International Conference on Unmanned Aircraft Systems (ICUAS)*, pages 839–848. IEEE, 2022.

99. Cómputo Comunicaciones y Contacto Ciudadano de la Ciudad de México Centro de Comando, Control and C5 CDMX. Gobierno de la Ciudad de México, 2023.

100. Fabio Cermelli, Massimiliano Mancini, Samuel Rota Bulo, Elisa Ricci, and Barbara Caputo. Modeling the background for incremental learning in semantic segmentation. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 9233–9242, 2020.

101. Ender Çetin, Alicia Cano, Robin Deransy, Sergi Tres, and Cristina Barrado. Implementing mitigations for improving societal acceptance of urban air mobility. *Drones*, 6(2):28, 2022.

102. T. Chai and R. R. Draxler. Root mean square error (RMSE) or mean absolute error (cao)? â arguments against avoiding RMSE in the literature. *Geoscientific Model Development*, 7(3):1247–1250, 2014.

103. U. Chatterjee, R. S. Chakraborty, J. Mathew, and Dhiraj K. P. Memristor based arbiter PUF: cryptanalysis threat and its mitigation. In *IEEE 29th Int. Conf. on VLSI Design and IEEE 15th Int. Conference on Embedded Systems (VLSID)*, pages 535–540, 2016.

104. Aggelina Chatziagapi, ShahRukh Athar, Abhinav Jain, Rohith MV, Vimal Bhat, and Dimitris Samaras. LipNeRF: What is the right feature space to lip-sync a NeRF? In *2023 IEEE 17th International Conference on Automatic Face and Gesture Recognition (FG)*, pages 1–8, January 2023.

105. Nived Chebrolu, Philipp Lottes, Thomas Läbe, and Cyrill Stachniss. Robot localization based on aerial images for precision agriculture tasks in crop fields. In *2019 International Conference on Robotics and Automation (ICRA)*, pages 1787–1793. IEEE, 2019.

106. M. L. Chen, Doddi A. Royer J., Freschi L., Schito M., Ezewudo M., Kohane I. S., Beam A., and Farhat M. Beyond multidrug resistance: Leveraging rare variants with machine and statistical learning models in mycobacterium tuberculosis resistance prediction. *EBioMedicine*, 43:356–369, 2019.

107. Shilang Chen, Junjun Wu, Qinghua Lu, Yanran Wang, and Zeqin Lin. Cross-scene loop-closure detection with continual learning for visual simultaneous localization and mapping. *International Journal of Advanced Robotic Systems*, 18(5): 17298814211050560, 2021. SAGE Publications Sage UK: London, England.

108. X. Chen, O. Schulz-Trieglaff, R. Shaw, B. Barnes, F. Schlesinger, M. Källberg, A. Cox, S. Kruglyak, and S. Saunders. Manta: Rapid detection of structural variants and indels for germline and cancer sequencing applications. *Bioinformatics*, 32:1220–1222, 2016.

109. Zetao Chen, Adam Jacobson, Niko Sünderhauf, Ben Upcroft, Lingqiao Liu, Chunhua Shen, Ian Reid, and Michael Milford. Deep learning features at scale for visual

place recognition. In *2017 IEEE International Conference on Robotics and Automation (ICRA)*, pages 3223–3230. IEEE, 2017.

110. Luca Chiaraviglio, Marco Fiore, Edouard Rossi, Marco Ajmone Marsan, Nicola Blefari Melazzi, and Stefano Buzzi. 5G technology: Which risks from the health perspective. *The 5G Italy Book*, 2019.

111. Elisabetta Chicca, Fabio Stefanini, Chiara Bartolozzi, and Giacomo Indiveri. Neuro-morphic electronic circuits for building autonomous cognitive systems. *Proceedings of the IEEE*, 102(9):1367–1388, 2014.

112. Ioannis Chiotellis, Franziska Zimmermann, Daniel Cremers, and Rudolph Triebel. Incremental semi-supervised learning from streams for object classification. In *2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 5743–5749. IEEE, 2018.

113. Hyeon Cho, Dongyi Kim, Junho Park, Kyungshik Roh, and Wonjun Hwang. 2d bar-code detection using images for drone-assisted inventory management. In *2018 15th International Conference on Ubiquitous Robots (UR)*, pages 461–465. IEEE, 2018.

114. Francois Chollet et al. *Deep learning with Python*, volume 361. Manning New York, 2018.

115. Yong Shean Chong and Yong Haur Tay. Abnormal event detection in videos using spatiotemporal autoencoder. In *Advances in Neural Networks-ISNN 2017: 14th International Symposium, ISNN 2017, Sapporo, Hakodate, and Muroran, Hokkaido, Japan, June 21–26, 2017, Proceedings, Part II 14*, pages 189–196. Springer, 2017.

116. N. Chowdhury, M. Kabir, M. Rahman, and S. Islam. Machine learning for detecting covid-19 from cough sounds: An ensemble-based mcdm method. *Comput Biol Med*, 145:105405, 2022.

117. L. Chua. Memristor-the missing circuit element. *IEEE Transactions on circuit theory*, 18(5):507–519, 1971.

118. Jaeyoung Chung, Kanggeon Lee, Sungyong Baik, and Kyoung Mu Lee. MEIL-NeRF: Memory-Efficient Incremental Learning of Neural Radiance Fields, December 2022. arXiv:2212.08328 [cs].

119. Claudio Cimarelli, Dario Cazzato, Miguel A. Olivares-Mendez, and Holger Voos. Faster visual-based localization with mobile-posenet. In *International Conference on Computer Analysis of Images and Patterns*, pages 219–230. Springer, 2019.

120. Mircea Cimpoi, Subhransu Maji, Iasonas Kokkinos, Sammy Mohamed, and Andrea Vedaldi. Describing textures in the wild. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 3606–3613, 2014.

121. Petr Cisar, Dinara Bekkozhayeva, Oleksandr Movchan, Mohammadmehdi Saberioon, and Rudolf Schraml. Computer vision based individual fish identification using skin dot pattern. *Scientific Reports*, 11, 12 2021.

122. CISCO. Cisco annual internet report (2018–2023) white paper. Technical Report C11-741490-01, CISCO Public, Mar 2020.

123. Charles Clancy, Joe Hecker, Erich Stuntebeck, and Tim O'Shea. Applications of machine learning to cognitive radio networks. *IEEE Wireless Communications*, 14(4):47–52, 2007.

124. J. Arturo Cocoma-Ortega and J. Martinez-Carranza. A compact cnn approach for drone localisation in autonomous drone racing. *Journal of Real-Time Image Processing*, pages 1–14, 2021.

125. J. Arturo Cocoma-Ortega, L. Oyuki Rojas-Perez, Aldrich A. Cabrera-Ponce, and J. Martinez-Carranza. Overcoming the blind spot in cnn-based gate detection for

autonomous drone racing. In *2019 Workshop on Research, Education and Development of Unmanned Aerial Systems (RED UAS)*, pages 253–259. IEEE, 2019.

126. Jos Arturo Cocoma-Ortega and J. Martinez-Carranza. A cnn based drone localisation approach for autonomous drone racing. In *11th International Micro Air Vehicle Competition and Conference*, 2019.

127. José Arturo Cocoma-Ortega and José Martínez-Carranza. Towards high-speed localisation for autonomous drone racing. In *Mexican International Conference on Artificial Intelligence*, pages 740–751. Springer, 2019.

128. The CRyPTIC Consortium. A data compendium associating the genomes of 12,289 mycobacterium tuberculosis isolates with quantitative resistance phenotypes to 13 antibiotics. *PLOS Biology*, 20:e3001721, 2022.

129. The CRyPTIC Consortium. Genome-wide association studies of global mycobacterium tuberculosis resistance to 13 antimicrobials in 10,228 genomes identify new resistance mechanisms. *PLOS Biology*, 20:e3001755, 2022.

130. Eduardo Enrique Contreras-Luján, Enrique Efrén García-Guerrero, Oscar Roberto López-Bonilla, Esteban Tlelo-Cuautle, Didier López-Mancilla, and Everardo Inzunza-González. Evaluation of machine learning algorithms for early diagnosis of deep venous thrombosis. *Mathematical and Computational Applications*, 27(2):24, 2022.

131. F. Cornejo-Granados, G. López-Leal, D. Mata-Espinosa, J. Barrios-Payán, B. Marquina-Castillo, E. Equihua-Medina, Z. Zatarain-Barrón, C. Molina-Romero, R. Hernández-Pando, and A. Ochoa-Leyva. Targeted rna-seq reveals the m. tuberculosis transcriptome from an in vivo infection model. *Biology*, 10:1–18, 2021.

132. Abril Corona-Figueroa, Jonathan Frawley, Sam Bond-Taylor, Sarath Bethapudi, Hubert P. H. Shum, and Chris G. Willcocks. MedNeRF: Medical Neural Radiance Fields for Reconstructing 3D-aware CT-Projections from a Single X-ray, April 2022. arXiv:2202.01020 [cs, eess].

133. M. Coyle, D. Keenan, L. Henderson, M. Watkins, B. Haumann, D. Mayleben, and M. Wilson. Evaluation of an ambulatory system for the quantification of cough frequency in patients with chronic obstructive pulmonary disease. *Cough*, 1:3, 2005.

134. Davide Cristiani, Filippo Bottonelli, Angelo Trotta, and Marco Di Felice. Inventory management through mini-drones: Architecture and proof-of-concept implementation. In *2020 IEEE 21st International Symposium on "A World of Wireless, Mobile and Multimedia Networks"(WoWMoM)*, pages 317–322. IEEE, 2020.

135. Ernesto Cruz-Esquivel and Zobeida J Guzman-Zavaleta. An examination on autoencoder designs for anomaly detection in video surveillance. *IEEE Access*, 10:6208–6217, 2022.

136. J. R. Cárdenas-Valdez, J. A. Galaviz-Aguilar, C. Vargas-Rosales, E. Inzunza-González, and L. Flores-Hernández. A crest factor reduction technique for lte signals with target relaxation in power amplifier linearization. *Sensors*, 22(3), 2022.

137. Qiyu Dai, Yan Zhu, Yiran Geng, Ciyu Ruan, Jiazhao Zhang, and He Wang. GraspNeRF: Multiview-based 6-DoF Grasp Detection for Transparent and Specular Objects Using Generalizable NeRF. October 2022.

138. P. Danecek, J. Bonfield, J. Liddle, J. Marshall, V. Ohan, M. Pollard, A. Whitwham, T. Keane, S. McCarthy, and R. Davies. Twelve years of samtools and bcftools. *GigaScience*, 10, 2021.

139. Shaveta Dargan, Munish Kumar, Maruthi Rohit Ayyagari, and Gulshan Kumar. A survey of deep learning and its applications: a new paradigm to machine learning. *Archives of Computational Methods in Engineering*, 27:1071–1092, 2020.

140. Andrew J Davison, Ian D Reid, Nicholas D Molton, and Olivier Stasse. Monoslam: Real-time single camera slam. *IEEE transactions on pattern analysis and machine intelligence*, 29(6):1052–1067, 2007.

141. Luca Davoli, Emanuele Pagliari, and Gianluigi Ferrari. Hybrid LoRa-IEEE 802.11s Opportunistic Mesh Networking for Flexible UAV Swarming. *Drones*, 5(2):26, June 2021. Number: 2 Publisher: Multidisciplinary Digital Publishing Institute.

142. Antonio De Falco, Fabio Narducci, and Alfredo Petrosino. An uav autonomous warehouse inventorying by deep learning. In *International Conference on Image Analysis and Processing*, pages 443–453. Springer, 2019.

143. Luca De Luigi, Damiano Bolognini, Federico Domeniconi, Daniele De Gregorio, Matteo Poggi, and Luigi Di Stefano. ScanNeRF: a Scalable Benchmark for Neural Radiance Fields. In *2023 IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, pages 816–825, January 2023. ISSN: 2642-9381.

144. A. De Ruijter and F. Guldenmund. The bowtie method: A review. *Safety Science*, 88:211–218, 2015.

145. U. De Silva, T. Koike-Akino, R. Ma, A. Yamashita, and H. Nakamizo. A Modular 1D-CNN Architecture for Real-time Digital Pre-distortion. In *2022 IEEE Topical Conference on RF/Microwave Power Amplifiers for Radio and Wireless Applications (PAWR)*, pages 79–81. IEEE, 2022.

146. W. Deelder, S. Christakoudi, J. Phelan, E. Diez Benavente, S. Campino, R. McNerney, L. Palla, and T.G Clark. Machine learning predicts accurately mycobacterium tuberculosis drug resistance from whole genome sequencing data. *Frontiers in Genetics*, 10:1–9, 2019.

147. M. V. Deepak Nair, R. Giofre, P. Colantonio, and F. Giannini. NARMA based novel closed loop digital predistortion using Moore-Penrose inverse technique. *2016 11th European Microwave Integrated Circuits Conference (EuMIC)*, pages 405–408, 2016.

148. M. Delavar, S. Mirzakuchaki, and J. Mohajeri. A ring oscillator-based PUF with enhanced challenge-response pairs. *Canadian Journal of Electrical and Computer Engineering*, 39(2):174–180, 2016.

149. Jeffrey Delmerico and Davide Scaramuzza. A benchmark comparison of monocular visual-inertial odometry algorithms for flying robots. In *2018 IEEE International Conference on Robotics and Automation (ICRA)*, pages 2502–2509, 2018.

150. Mehmet Ozgun Demir, Ali Emre Pusane, Guido Dartmann, Gerd Ascheid, and Gunes Karabulut Kurt. A garden of cyber physical systems: Requirements, challenges, and implementation aspects. *IEEE Internet of Things Magazine*, 3(3):84–89, 2020.

151. Congyue Deng, Chiyu "Max" Jiang, Charles R. Qi, Xinchen Yan, Yin Zhou, Leonidas Guibas, and Dragomir Anguelov. NeRDi: Single-View NeRF Synthesis with Language-Guided Diffusion as General Image Priors, December 2022. arXiv:2212.03267 [cs].

152. Dawa Derksen and Dario Izzo. Shadow Neural Radiance Fields for Multi-view Satellite Photogrammetry. In *2021 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, pages 1152–1161, June 2021. ISSN: 2160-7516.

153. S. Dikmese, L. Anttila, P. P. Campo, M. Valkama, and M. Renfors. Behavioral Modeling of Power Amplifiers With Modern Machine Learning Techniques. *IEEE MTT-S International Microwave Conference on Hardware and Systems for 5G and Beyond (IMC-5G)*, pages 1–3, 2019.

154. Sinahi Dionisio-Ortega, L. Oyuki Rojas-Perez, Jose Martinez-Carranza, and Israel Cruz-Vega. A deep learning approach towards autonomous flight in forest environments. In *2018 International Conference on Electronics, Communications and Computers (CONIELECOMP)*, pages 139–144. IEEE, 2018.

155. Na Dong, Yongqiang Zhang, Mingli Ding, and Gim Hee Lee. Open world detr: Transformer based open world object detection. *arXiv preprint arXiv:2212.02969*, 2022.

156. Songlin Dong, Haoyu Luo, Yuhang He, and Xing Wei Yihong Gong. Knowledge restore and transfer for multi-label class-incremental learning. *arXiv preprint arXiv:2302.13334*, 2023.

157. Con Doolan, Yendrew Yauwenas, and Danielle Moreau. Drone propeller noise under static and steady inflow conditions. In *Flinovia—Flow Induced Noise and Vibration Issues and Aspects-III*, pages 45–60. Springer, 2021.

158. Alexey Dosovitskiy, Philipp Fischer, Eddy Ilg, Philip Hausser, Caner Hazirbas, Vladimir Golkov, Patrick Van Der Smagt, Daniel Cremers, and Thomas Brox. Flownet: Learning optical flow with convolutional networks. In *Proceedings of the IEEE international conference on computer vision*, pages 2758–2766, 2015.

159. DroneScan. Physical inventory: Stock take, physical inventory, cycle counting. `https://www.dronescan.co/info`. Accessed on June 1, 2023.

160. Hualong Du, Pengfei Liu, Qiuyu Cui, Xin Ma, and He Wang. PID Controller Parameter Optimized by Reformative Artificial Bee Colony Algorithm. *Journal of Mathematics*, 2022:e3826702, February 2022. Publisher: Hindawi.

161. Yilun Du, Yinan Zhang, Hong-Xing Yu, Joshua B. Tenenbaum, and Jiajun Wu. Neural Radiance Flow for 4D View Synthesis and Video Processing, September 2021. arXiv:2012.09790 [cs].

162. D. Dua and C. Graff. Uci machine learning repository, 2017. `https://archive.ics.uci.edu/ml/datasets/`.

163. Hugh Durrant-Whyte and Tim Bailey. Simultaneous localization and mapping: part i. *IEEE robotics & automation magazine*, 13(2):99–110, 2006.

164. Malay Kishore Dutta, Namita Sengar, Narayan Kamble, Kaushik Banerjee, Navroj Minhas, and Biplab Sarkar. Image processing based technique for classification of fish quality after cypermethrine exposure. *LWT*, 68:408–417, 5 2016.

165. Hinnerk Eißfeldt and Marcus Biella. The public acceptance of drones–challenges for advanced aerial mobility (aam). *Transportation Research Procedia*, 66:80–88, 2022.

166. Oussama EL JIATI. The use of drones in e-commerce logistics and supply chain managament. 2021.

167. O. F. Erturul. A novel randomized machine learning approach: Reservoir computing extreme learning machine. *Applied Soft Computing*, 94:106433, 2020.

168. Z. Xu et al. A tangent approximation coefficient extraction method for instantaneous sample indexed magnitude-selective affine behavioral model. *IEEE Microwave and Wireless Components Letters*, 32(11):1375–1378, 2022.

169. Yaxiang Fan, Gongjian Wen, Deren Li, Shaohua Qiu, Martin D. Levine, and Fei Xiao. Video anomaly detection and localization via gaussian mixture fully convolutional variational autoencoder. *Computer Vision and Image Understanding*, 195:102920, 2020.

170. Shuo Feng, Peyman Setoodeh, and Simon Haykin. Smart home: Cognitive interactive people-centric internet of things. *IEEE Communications Magazine*, 55(2):34–39, 2017.

171. Jose R. Fermin and Jairo Beltrán. Modelos de propagacion electromagnetica para telefonia movil. 2012.

172. Arthur F. A. Fernandes, Eduardo M. Turra, Érika R. de Alvarenga, Tiago L. Passafaro, Fernando B. Lopes, Gabriel F. O. Alves, Vikas Singh, and Guilherme J. M. Rosa. Deep learning image segmentation for extraction of fish body measurements and prediction of body weight and carcass traits in nile tilapia. *Computers and Electronics in Agriculture*, 170:105274, 2020.

173. Tiago M Fernández-Caramés, Oscar Blanco-Novoa, Iván Froiz-Míguez, and Paula Fraga-Lamas. Towards an autonomous industry 4.0 warehouse: A uav and blockchain-based system for inventory and traceability applications in big data-driven supply chain management. *Sensors*, 19(10):2394, 2019.

174. Tiago M. Fernández-Caramés, Oscar Blanco-Novoa, Manuel Suárez-Albela, and Paula Fraga-Lamas. A uav and blockchain-based system for industry 4.0 inventory and traceability applications. In *Multidisciplinary Digital Publishing Institute Proceedings*, volume 4, page 26, 2018.

175. Greg Foderaro, Pingping Zhu, Hongchuan Wei, Thomas A. Wettergren, and Silvia Ferrari. Distributed optimal control of sensor networks for dynamic target tracking. *IEEE Transactions on Control of Network Systems*, 5(1):142–153, 2018.

176. Philipp Foehn, Dario Brescianini, Elia Kaufmann, Titus Cieslewski, Mathias Gehrig, Manasi Muglikar, and Davide Scaramuzza. Alphapilot: Autonomous drone racing. *arXiv preprint arXiv:2005.12813*, 2020.

177. Philipp Foehn, Angel Romero, and Davide Scaramuzza. Time-optimal planning for quadrotor waypoint flight. *Science Robotics*, 6(56):eabh1221, 2021.

178. Cesar Augusto Fontanillo Lopez, Guangye Li, and Dingguo Zhang. Beyond Technologies of Electroencephalography-Based Brain-Computer Interfaces: A Systematic Review From Commercial and Ethical Aspects. *Frontiers in Neuroscience*, 14, 2020.

179. Azade Fotouhi, Haoran Qiang, Ming Ding, Mahbub Hassan, Lorenzo Galati Giordano, Adrian Garcia-Rodriguez, and Jinhong Yuan. Survey on UAV cellular communications: Practical aspects, standardization advancements, regulation, and security challenges. *IEEE Communications Surveys & Tutorials*, 21(4):3417–3442, 2019.

180. Jonas Frey, Hermann Blum, Francesco Milano, Roland Siegwart, and Cesar Cadena. Continual adaptation of semantic segmentation using complementary 2d-3d data representations. *IEEE Robotics and Automation Letters*, 7(4):11665–11672, 2022.

181. Guihong Fu and Yun Yuna. Phenotyping and phenomics in aquaculture breeding, 3 2022.

182. Shin Fujieda, Kohei Takayama, and Toshiya Hachisuka. Wavelet convolutional neural networks. *arXiv preprint arXiv:1805.08620*, 2018.

183. Taku Fujitomi, Ken Sakurada, Ryuhei Hamaguchi, Hidehiko Shishido, Masaki Onishi, and Yoshinari Kameda. LB-NERF: Light Bending Neural Radiance Fields for Transparent Medium. In *2022 IEEE International Conference on Image Processing (ICIP)*, pages 2142–2146, October 2022. ISSN: 2381-8549.

184. Fadri Furrer, Michael Burri, Markus Achtelik, and Roland Siegwart. Rotors?a modular gazebo mav simulator framework. In *Robot operating system (ROS)*, pages 595–625. Springer, 2016.

185. J. M. Fuster. *Cortex and Mind: Unifying Cognition*. Oxford University Press, 2003.

186. Joaquin M. Fuster. The prefrontal cortex makes the brain a preadaptive system. *Proceedings of the IEEE*, 102(4):417–426, 2014.

187. Guy Gafni, Justus Thies, Michael Zollhöfer, and Matthias Nießner. Dynamic Neural Radiance Fields for Monocular 4D Facial Avatar Reconstruction, December 2020. arXiv:2012.03065 [cs].

188. J. Galagan, K. Minch, M. Peterson, A. Lyubetskaya, E. Azizi, L. Sweet, A. Gomes, T. Rustad, G. Dolganov, I. Glotova, T. Abeel, C. Mahwinney, A. Kennedy, R. Allard, W. Brabant, A. Krueger, S. Jaini, B. Honda, W. Yu, M. Hickey, J. Zucker, C. Garay, B. Weiner, P. Sisk, C. Stolte, J. Winkler, Y. Van De Peer, P. Iazzetti, D. Camacho, J. Dreyfuss, Y. Liu, A. Dorhoi, H. Mollenkopf, P. Drogaris, J. Lamontagne, Y. Zhou, J. Piquenot, S. Park, S. Raman, S. Kaufmann, R. Mohney, D. Chelsky, D. Moody,

D. Sherman, and G. Schoolnik. The mycobacterium tuberculosis regulatory network and hypoxia. *Nature*, 499:178–183, 2013.

189. J. A. Galaviz-Aguilar, C. Vargas-Rosales, J. R. Cárdenas-Valdez, D. S. Aguila-Torres, and L. Flores-Hernández. A Comparison of Surrogate Behavioral Models for Power Amplifier Linearization under High Sparse Data. *Sensors*, 22(19), 2022.

190. Chen Gao, Ayush Saraf, Johannes Kopf, and Jia-Bin Huang. Dynamic View Synthesis from Dynamic Monocular Video. In *2021 IEEE/CVF International Conference on Computer Vision (ICCV)*, pages 5692–5701, October 2021. ISSN: 2380-7504.

191. Dasong Gao, Chen Wang, and Sebastian Scherer. Airloop: Lifelong loop closure detection. In *2022 International Conference on Robotics and Automation (ICRA)*, pages 10664–10671. IEEE, 2022.

192. Sicun Gao. Nonlinearity, automation, and reliable cyberphysical systems. *Computer*, 54(7):94–96, 2021.

193. Y. Gao, C. Jin, J. Kim, H. Nili, X. Xu, W. Burleson, O. Kavehei, Ma. van Dijk, D. Chinthana Ranasinghe, and U. Rührmair. Efficient erasable PUFs from programmable logic and memristors. *IACR Cryptology ePrint Archive*, 2018:358, 2018.

194. Y. Gao, D. C. Ranasinghe, S. F Al-Sarawi, O. Kavehei, and D. Abbott. Emerging physical unclonable functions with nanotechnology. *IEEE Access*, 4:61–80, 2016.

195. Y. Gao, D. C. Ranasinghe, S.F. Al-Sarawi, O. Kavehei, and D. Abbott. Mrpuf: A novel memristive device based physical unclonable function. In *Int. Conf. on Applied Cryptography and Network Security*, pages 595–615. Springer, 2015.

196. Yunyuan Gao, Bo Gao, Qiang Chen, Jia Liu, and Yingchun Zhang. Deep convolutional neural network-based epileptic electroencephalogram (eeg) signal classification. *Frontiers in Neurology*, 11, 2020.

197. Stephan J. Garbin, Marek Kowalski, Matthew Johnson, Jamie Shotton, and Julien Valentin. FastNeRF: High-Fidelity Neural Rendering at 200FPS, April 2021. arXiv:2103.10380 [cs].

198. M. Garcia-Bosque, G. Díez-Señorans, C. Sánchez-Azqueta, and S. Celma. Proposal and analysis of a novel class of PUFs based on Galois ring oscillators. *IEEE Access*, 8:157830–157839, 2020.

199. K. Garikapati, S. Turnbull, R. Bennett, T. Campbell, J. Kanawati, M. Wong, S. Thomas, C. Chow, and S. Kumar. The role of contemporary wearable and handheld devices in the diagnosis and management of cardiac arrhythmias. *Heart Lung Circ*, 31:1432–1449, 2022.

200. B. Gassend, D. Clarke, M. Van Dijk, and S. Devadas. Silicon physical random functions. In *Proceedings of the 9th ACM conf. on Computer and communications security*, pages 148–160. ACM, 2002.

201. Hasan Genc, Yazhou Zu, Ting-Wu Chin, Matthew Halpern, and Vijay Janapa Reddi. Flying iot: Toward low-power vision in the sky. *IEEE Micro*, 37(6):40–51, 2017.

202. J. Giudicessi, M. Schram, J. Bos, C. Galloway, J. Shreibati, P. Johnson, R. Carter, L. Disrud, R. Kleiman, Z. Attia, P. Noseworthy, P. Friedman, D. Albert, and M. Ackerman. Artificial intelligence-enabled assessment of the heart rate corrected qt interval using a mobile electrocardiogram device. *Circulation*, 143:1274–1286, 2021.

203. Lorenzo Giusti, Josue Garcia, Steven Cozine, Darrick Suen, Christina Nguyen, and Ryan Alimo. MaRF: Representing Mars as Neural Radiance Fields, December 2022. arXiv:2212.01672 [cs].

204. Payam Gohari, Hossein Mohammadi, and Sajjad Taghvaei. Using chaotic maps for 3D boundary surveillance by quadrotor robot. *Applied Soft Computing*, 76, December 2018.

205. Ary L. Goldberger, Luis A. N. Amaral, Leon Glass, Jeffrey M. Hausdorff, Plamen Ch. Ivanov, Roger G. Mark, Joseph E. Mietus, George B. Moody, Chung-Kang Peng, and H. Eugene Stanley. Physiobank, physiotoolkit, and physionet. *Circulation*, 101(23):e215–e220, 2000.

206. I. Goldenberg, A. Moss, and W. Zareba. Qt interval: How to measure it and what is "normal". *Journal of Cardiovascular Electrophysiology*, 17:333–336, 2006.

207. Bingchen Gong, Yuehao Wang, Xiaoguang Han, and Qi Dou. RecolorNeRF: Layer Decomposed Radiance Fields for Efficient Color Editing of 3D Scenes, February 2023. arXiv:2301.07958 [cs].

208. Cheng Gong, Jianwei Gong, Chao Lu, Zhe Liu, and Zirui Li. Life-long multi-task learning of adaptive path tracking policy for autonomous vehicle. *arXiv preprint arXiv:2109.07210*, 2021.

209. Fabio Alfonso Gonzalez, M. E. Afanador Cristancho, and E. F. Niño López. Modelamiento y simulación de un quadrotor mediante la integración de simulink y solidworks. *Maskay*, 9(1):15–24, 2019.

210. Ramon Gonzalez, Francisco Rodriguez, Jose Luis Guzman, Cedric Pradalier, and Roland Siegwart. Combined visual odometry and visual compass for off-road mobile robots localization. *Robotica*, 30(6):865–878, 2012.

211. Ian Goodfellow, Yoshua Bengio, and Aaron Courville. *Deep Learning*. MIT Press, 2016. http://www.deeplearningbook.org.

212. Ian Goodfellow, Jean Pouget-Abadie, Mehdi Mirza, Bing Xu, David Warde-Farley, Sherjil Ozair, Aaron Courville, and Yoshua Bengio. Generative adversarial networks. *Communications of the ACM*, 63(11):139–144, 2020.

213. Ramesh A Gopinath, Haitao Guo, C Sidney Burrus, and L Sidney Burrus. Introduction to wavelets and wavelet transforms: a primer, 1997.

214. K. S. Goud and S. R. Gidituri. Security challenges and related solutions in software defined networks: A survey. *International Journal of Computer Networks and Applications*, 9(1):22–37, 2022.

215. Maximilian Grobbelaar, Souvik Phadikar, Ebrahim Ghaderpour, Aaron F. Struck, Nidul Sinha, Rajdeep Ghosh, and Md. Zaved Iqubal Ahmed. A survey on denoising techniques of electroencephalogram signals using wavelet transform. *Signals*, 3(3):577–586, 2022.

216. Tianhao Gu, Zhe Wang, Ziqiu Chi, Yiwen Zhu, and Wenli Du. Unsupervised cycle optimization learning for single-view depth and camera pose with kalman filter. *Engineering Applications of Artificial Intelligence*, 106:104488, 2021.

217. François Guérin, Frédéric Guinand, Jean-François Brethé, Hervé Pelvillain, et al. Towards an autonomous warehouse inventory scheme. In *2016 IEEE Symposium Series on Computational Intelligence (SSCI)*, pages 1–8. IEEE, 2016.

218. M. Guerrero-Chevannier. Modelo basado en deep learning para el diagnostico de tuberculosis pulmonar utilizando radiografias de torax y perfiles clinicos. Master's thesis, Universidad Autonoma de Baja California, 2022.

219. Ente Guo, Zhifeng Chen, Yanlin Zhou, and Dapeng Oliver Wu. Unsupervised learning of depth and camera pose with feature map warping. *Sensors*, 21(3):923, 2021.

220. Yuan-Chen Guo, Di Kang, Linchao Bao, Yu He, and Song-Hai Zhang. NeRFReN: Neural Radiance Fields with Reflections, April 2022. arXiv:2111.15234 [cs].

221. Yudong Guo, Keyu Chen, Sen Liang, Yong-Jin Liu, Hujun Bao, and Juyong Zhang. AD-NeRF: Audio Driven Neural Radiance Fields for Talking Head Synthesis, August 2021. arXiv:2103.11078 [cs].

222. Ohad Gur and Aviv Rosen. Design of quiet propeller for an electric mini unmanned air vehicle. *Journal of Propulsion and Power*, 25(3):717–728, 2009.

223. V. Guryanova. Transfer learning for tuberculosis screening by single-channel ecg. *Data Science*, pages 149–154, 2020.

224. Marco Antonio Gómez-Guzmán, Laura Jiménez-Beristaín, Enrique Efren García-Guerrero, Oscar Roberto López-Bonilla, Ulises Jesús Tamayo-Perez, José Jaime Esqueda-Elizondo, Kenia Palomino-Vizcaino, and Everardo Inzunza-González. Classifying brain tumors on magnetic resonance imaging by using convolutional neural networks. *Electronics*, 12:955, 2, 2023.

225. Teuku Mohd Ichwanul Hakim and Ony Arifianto. Implementation of dryden continuous turbulence model into simulink for LSA-02 flight test simulation. In *Journal of Physics: Conference Series*, volume 1005, page 012017. IOP Publishing, 2018.

226. Bohyung Han, Jack Sim, and Hartwig Adam. Branchout: Regularization for online ensemble tracking with convolutional neural networks. In *Proceedings of the IEEE conference on computer vision and pattern recognition*, pages 3356–3365, 2017.

227. E. Harausz, H. Cox, M. Rich, C. Mitnick, P. Zimetbaum, and J. Furin. Qtc prolongation and treatment of multidrug-resistant tuberculosis. *The International Journal of Tuberculosis and Lung Disease*, 19:385–391, 2015.

228. Mahmudul Hasan, Jonghyun Choi, Jan Neumann, Amit K. Roy-Chowdhury, and Larry S. Davis. Learning temporal regularity in video sequences. In *Proceedings of the IEEE conference on computer vision and pattern recognition*, pages 733–742, 2016.

229. Yasunari Hashimoto and Junichi Ushiba. EEG-based classification of imaginary left and right foot movements using beta rebound. *Clinical Neurophysiology*, 124(11):2153–2160, November 2013.

230. S. Haykin, A.O. Hero, and E. Moulines. Modeling, identification, and control of large-scale dynamical systems. In *Proceedings. (ICASSP '05). IEEE International Conference on Acoustics, Speech, and Signal Processing, 2005.*, volume 5, pages v/945–v/948 Vol. 5, 2005.

231. Simon Haykin. *Cognitive Dynamic Systems: Perception-action Cycle, Radar and Radio*. Cambridge University Press, 2012.

232. Simon Haykin, Mehdi Fatemi, Peyman Setoodeh, and Yanbo Xue. Cognitive control. *Proceedings of the IEEE*, 100(12):3156–3169, 2012.

233. Simon Haykin, Joaquin M. Fuster, David Findlay, and Shuo Feng. Cognitive risk control for physical systems. *IEEE Access*, 5:14664–14679, 2017.

234. Simon Haykin and Eric Moulines. Special issue on large-scale dynamic systems. *Proceedings of the IEEE*, 95(5):849–852, 2007.

235. Simon Haykin, Yanbo Xue, and Peyman Setoodeh. Cognitive radar: Step toward bridging the gap between neuroscience and engineering. *Proceedings of the IEEE*, 100(11):3102–3130, 2012.

236. Jiangpeng He, Runyu Mao, Zeman Shao, and Fengqing Zhu. Incremental learning in online scenario. In *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition*, pages 13926–13935, 2020.

237. Kaiming He, Xiangyu Zhang, Shaoqing Ren, and Jian Sun. Deep residual learning for image recognition, 2015.

238. Peter Hedman, Pratul P. Srinivasan, Ben Mildenhall, Jonathan T. Barron, and Paul Debevec. Baking Neural Radiance Fields for Real-Time View Synthesis, March 2021. arXiv:2103.14645 [cs].

239. Coanda Henri. Device for deflecting a stream of elastic fluid projected into an elastic fluid, September 1 1936. US Patent 2,052,869.

240. C. Herder, M. Yu, F. Koushanfar, and S. Devadas. Physical unclonable functions and applications: A tutorial. *Proceedings of the IEEE*, 102(8):1126–1141, 2014.

241. J. M. Hernández-Ontiveros, E. Inzunza-González, E. E. García-Guerrero, O. R. López-Bonilla, S. O. Infante-Prieto, J. R. Cárdenas-Valdez, and E. Tlelo-Cuautle. Development and implementation of a fish counter by using an embedded system. *Computers and Electronics in Agriculture*, 145:53–62, 2 2018.

242. Gert Herold. In-flight directivity and sound power measurement of small-scale unmanned aerial systems. *Acta Acustica*, 6:58, 2022.

243. Mario Patricio Herrera Holguín and Juan Carlos Inclán Luna. Estudio y metodología de diseño de antenas utilizando geometría fractal (antenas fractales). B.S. thesis, Quito: Escuela Politécnica Nacional, 2004.

244. T. Hill and R. Unckless. A deep learning approach for detecting copy number variation in next-generation sequencing data. *G3 (Bethesda, Md.)*, 9:3575–3582, 2019.

245. Eißfeldt Hinnerk and Verena Vogelpohl. Drone acceptance and noise concerns-some findings. In *53rd International Symposium on Aviation Psychology. Wright State University, Dayton, OH, USA*, pages 199–204, 2019.

246. K. Honda and H. Tamukoh. A hardware-oriented echo state network and its FPGA implementation. *Journal of Robotics, Networking and Artificial Life*, 71:58–62, 2020.

247. Kunlong Hong, Hongguang Wang, and Bingbing Yuan. Inspection-Nerf: Rendering Multi-Type Local Images for Dam Surface Inspection Task Using Climbing Robot and Neural Radiance Field. *Buildings*, 13(1):213, January 2023. Number: 1 Publisher: Multidisciplinary Digital Publishing Institute.

248. Yang Hong, Bo Peng, Haiyao Xiao, Ligang Liu, and Juyong Zhang. HeadNeRF: A Real-time NeRF-based Parametric Head Model, April 2022. arXiv:2112.05637 [cs].

249. Csaba Horváth, Bence Fenyvesi, and Bálint Kocsis. Drone noise reduction via radiation efficiency considerations. 2018.

250. Mohammad-Parsa Hosseini, Amin Hosseini, and Kiarash Ahi. A review on machine learning for eeg signal processing in bioengineering. *IEEE Reviews in Biomedical Engineering*, 14:204–218, 2021.

251. Xiangwang Hou, Jingjing Wang, Zhengru Fang, Yong Ren, Kwang-Cheng Chen, and Lajos Hanzo. Edge intelligence for mission-critical 6g services in space-air-ground integrated networks. *IEEE Network*, 36(2):181–189, 2022.

252. Kerstin Howe, Matthew D. Clark, Carlos F. Torroja, James Torrance, et al. The zebrafish reference genome sequence and its relationship to the human genome. *Nature*, 496:498–503, 4 2013.

253. Alexander E. Hramov, Vladimir A. Maksimenko, and Alexander N. Pisarchik. Physical principles of brain–computer interfaces and their applications for rehabilitation, robotics and control of human brain states. *Physics Reports*, 918:1–133, 2021. Physical principles of brain–computer interfaces and their applications for rehabilitation, robotics and control of human brain states.

254. Benran Hu, Junkai Huang, Yichen Liu, Yu-Wing Tai, and Chi-Keung Tang. Nerf-rpn: A general framework for object detection in nerfs. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 23528–23538, 2023.

255. Jing Hu, Daoliang Li, Qingling Duan, Yueqi Han, Guifen Chen, and Xiuli Si. Fish species classification by color, texture and multi-class support vector machine using computer vision. *Computers and Electronics in Agriculture*, 88:133–140, 10 2012.

256. Junjie Hu, Chenyou Fan, Liguang Zhou, Qing Gao, Honghai Liu, and Tin Lun Lam. Lifelong-monodepth: Lifelong learning for multi-domain monocular metric depth estimation. *arXiv preprint arXiv:2303.05050*, 2023.

257. G.-B. Huang, Q-Y. Zhu, and C-K. Siew. Extreme learning machine: Theory and applications. *Neurocomputing*, 70:489–501, 2006.

258. Yi-Hua Huang, Yue He, Yu-Jie Yuan, Yu-Kun Lai, and Lin Gao. StylizedNeRF: Consistent 3D Scene Stylization as Stylized NeRF via 2D-3D Mutual Learning. In *2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 18321–18331, June 2022. ISSN: 2575-7075.

259. Zilong Huang, Wentian Hao, Xinggang Wang, Mingyuan Tao, Jianqiang Huang, Wenyu Liu, and Xian-Sheng Hua. Half-real half-fake distillation for class-incremental semantic segmentation. *arXiv preprint arXiv:2104.00875*, 2021.

260. José Manuel Huidobro. Antenas de telecomunicaciones. *Revista digital de acta*, 4, 2013.

261. Jeffrey Ichnowski, Yahav Avigal, Justin Kerr, and Ken Goldberg. Dex-NeRF: Using a Neural Radiance Field to Grasp Transparent Objects. October 2021.

262. A. Ijaz, M. Nabeel, U. Masood, T. Mahmood, M. Hashmi, I. Posokhova, A. Rizwan, and A. Imran. Towards using cough for respiratory disease diagnosis by leveraging artificial intelligence: A survey. *Informatics in Medicine Unlocked*, 29:100832, 2022.

263. Eddy Ilg, Nikolaus Mayer, Tonmoy Saikia, Margret Keuper, Alexey Dosovitskiy, and Thomas Brox. Flownet 2.0: Evolution of optical flow estimation with deep networks. In *Proceedings of the IEEE conference on computer vision and pattern recognition*, pages 2462–2470, 2017.

264. Kutalmis Gokalp Ince, Aybora Koksal, Arda Fazla, and A Aydin Alatan. Semi-automatic annotation for visual object tracking. In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, pages 1233–1239, 2021.

265. Norimasa Iwanami. Zebrafish as a model for understanding the evolution of the vertebrate immune system and human primary immunodeficiency. *Experimental Hematology*, 42(8):697–706, 2014. Genomics and Model Organisms: New Horizons for Experimental Hematology.

266. S. Jaeger, A. Karargyris, S. Candemir, J. Siegelman, L. Folio, S. Antani, and G. Thoma. Automatic screening for tuberculosis in chest radiographs: a survey. *Quantitative Imaging in Medicine and Surgery*, 3:89, 2013.

267. Ajay Jain, Matthew Tancik, and Pieter Abbeel. Putting NeRF on a Diet: Semantically Consistent Few-Shot View Synthesis, April 2021. arXiv:2104.00677 [cs].

268. A. K. Jain, J. Mao, and K. M. Mohiuddin. Artificial neural networks: A tutorial. *IEEE Computer Magazine*, 29(3):31–44, 1996.

269. S. Jamal, M. Khubaib, R. Gangwar, S. Grover, A. Grover, and S. E. Hasnain. Artificial intelligence and machine learning based prediction of resistant and susceptible mutations in mycobacterium tuberculosis. *Scientific Reports*, 10:1–16, 2020.

270. Guolai Jiang, Lei Yin, Shaokun Jin, Chaoran Tian, Xinbo Ma, and Yongsheng Ou. A simultaneous localization and mapping (slam) framework for 2.5 d map building based on low-cost lidar and vision fusion. *Applied Sciences*, 9(10):2105, 2019.

271. Lei Jiang, Gerald Schaefer, and Qinggang Meng. An Improved Novel View Synthesis Approach Based on Feature Fusion and Channel Attention. In *2022 IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, pages 2459–2464, October 2022. ISSN: 2577-1655.

272. Yizhang Jiang, Dongrui Wu, Zhaohong Deng, Pengjiang Qian, Jun Wang, Guanjin Wang, Fu-Lai Chung, Kup-Sze Choi, and Shitong Wang. Seizure classification from eeg signals using transfer learning, semi-supervised learning and tsk fuzzy system. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 25(12):2270–2284, 2017.

273. Z. Jiang, Y. Lu, Z. Liu, W. Wu, X. Xu, A. Dinnyes, Z. Yu, L. Chen, and Q. Sun. Drug resistance prediction and resistance genes identification in mycobacterium tuberculosis based on a hierarchical attentive neural network utilizing genome-wide variants. *Briefings in Bioinformatics*, 23:bbac041, 2022.

274. A. Jimenez-Ruano, C. Madrazo-Moya, I. Cancino-Muñoz, P. Mejia-Ponce, C. Licona-Cassani, I. Comas, R. Muñiz Salazar, and R. Zenteno-Cuevas. Whole genomic sequencing based genotyping reveals a specific x3 sublineage restricted to mexico and related with multidrug resistance. *Scientific Reports*, 11:1870, 2021.

275. Glenn Jocher, Ayush Chaurasia, Alex Stoken, Jirka Borovec, NanoCode012, Yonghye Kwon, Kalen Michael, TaoXie, Jiacong Fang, imyhxy, Lorna, Zeng Yifu, Colin Wong, Abhiram V, Diego Montes, Zhiqiang Wang, Cristi Fati, Jebastin Nadar, Laughing, UnglvKitDe, Victor Sonck, tkianai, yxNONG, Piotr Skalski, Adam Hogan, Dhruv Nair, Max Strobel, and Mrinal Jain. ultralytics/yolov5: v7.0 – YOLOv5 SOTA Realtime Instance Segmentation, November 2022.

276. Y. N. Joglekar and Stephen J. Wolf. The elusive memristor: properties of basic electrical circuits. *European Journal of physics*, 30(4):661, 2009.

277. Sunggoo Jung, Sungwook Cho, Dasol Lee, Hanseob Lee, David Hyunchul Shim, et al. A direct visual servoing-based framework for the 2016 iros autonomous drone racing challenge. *Journal of Field Robotics*, 35(1):146–166, 2018.

278. Sunggoo Jung, Sunyou Hwang, Heemin Shin, David Hyunchul Shim, et al. Perception, guidance, and navigation for indoor autonomous drone racing using deep learning. *IEEE Robotics and Automation Letters*, 3(3):2539–2544, 2018.

279. Sunggoo Jung, Hanseob Lee, Sunyou Hwang, and David Hyunchul Shim. Real time embedded system framework for autonomous drone racing using deep learning techniques. In *2018 AIAA Information Systems-AIAA Infotech@ Aerospace*, page 2138. 2018.

280. Sohag Kabir. Internet of things and safety assurance of cooperative cyber-physical systems: Opportunities and challenges. *IEEE Internet of Things Magazine*, 4(2):74–78, 2021.

281. Ivan Kalinov, Alexander Petrovsky, Valeriy Ilin, Egor Pristanskiy, Mikhail Kurenkov, Vladimir Ramzhaev, Ildar Idrisov, and Dzmitry Tsetserukou. Warevision: Cnn barcode detection-based uav trajectory optimization for autonomous warehouse stocktaking. *IEEE Robotics and Automation Letters*, 5(4):6647–6653, 2020.

282. Ivan Kalinov, Daria Trinitatova, and Dzmitry Tsetserukou. Warevr: Virtual reality interface for supervision of autonomous robotic system aimed at warehouse stocktaking. *arXiv preprint arXiv:2110.11052*, 2021.

283. Bouzgou Kamel, Bestaoui Yasmina, Benchikh Laredj, Ibari Benaoumeur, and Ahmed-Foitih Zoubir. Dynamic modeling, simulation and PID controller of unmanned aerial vehicle UAV. In *2017 Seventh International Conference on Innovative Computing Technology (INTECH)*, pages 64–69, Luton, UK, August 2017. IEEE.

284. Rohan Kapoor, Nicola Kloet, Alessandro Gardi, Abdulghani Mohamed, and Roberto Sabatini. Sound propagation modelling for manned and unmanned aircraft noise assessment and mitigation: A review. *Atmosphere*, 12(11):1424, 2021.

285. Elia Kaufmann, Mathias Gehrig, Philipp Foehn, René Ranftl, Alexey Dosovitskiy, Vladlen Koltun, and Davide Scaramuzza. Beauty and the beast: Optimal methods meet learning for drone racing. In *2019 International Conference on Robotics and Automation (ICRA)*, pages 690–696. IEEE, 2019.

286. Elia Kaufmann, Antonio Loquercio, Rene Ranftl, Alexey Dosovitskiy, Vladlen Koltun, Davide Scaramuzza, et al. Deep drone racing: Learning agile flight in dynamic environments. In *Conference on Robot Learning*, pages 133–145. PMLR, 2018.

287. E.S. Kavvas, E. Catoiu, N. Mih, J. T. Yurkovich, Y. Seif, N. Dillon, D. Heckmann, A. Anand, L. Yang, V. Nizet, J. M. Monk, and B. O. Palsson. Machine learning and structural analysis of mycobacterium tuberculosis pan-genome identifies genetic signatures of antibiotic resistance. *Nature Communications*, 9, 2018.

288. Berk Kaya, Suryansh Kumar, Francesco Sarno, Vittorio Ferrari, and Luc Van Gool. Neural Radiance Fields Approach to Deep Multi-View Photometric Stereo, October 2021. arXiv:2110.05594 [cs].

289. Bob Kemp and Jesus Olivan. European data format "plus" (edf+), an edf alike standard format for the exchange of physiological data. *Clinical Neurophysiology*, 114(9):1755–1761, 2003.

290. Alex Kendall and Roberto Cipolla. Modelling uncertainty in deep learning for camera relocalization. In *2016 IEEE international conference on Robotics and Automation (ICRA)*, pages 4762–4769. IEEE, 2016.

291. Alex Kendall and Roberto Cipolla. Geometric loss functions for camera pose regression with deep learning. In *Proceedings of the IEEE conference on computer vision and pattern recognition*, pages 5974–5983, 2017.

292. Alex Kendall, Matthew Grimes, and Roberto Cipolla. Posenet: A convolutional network for real-time 6-dof camera relocalization. In *Proceedings of the IEEE international conference on computer vision*, pages 2938–2946, 2015.

293. John Kennedy, Simone Garruccio, and Kai Cussen. Modelling and mitigation of drone noise. *Vibroengineering Procedia*, 37:60–65, 2021.

294. Justin Kerr, Letian Fu, Huang Huang, Yahav Avigal, Matthew Tancik, Jeffrey Ichnowski, Angjoo Kanazawa, and Ken Goldberg. Evo-NeRF: Evolving NeRF for Sequential Robot Grasping of Transparent Objects. November 2022.

295. René Keßler, Christian Melching, Ralph Goehrs, and Jorge Marx Gómez. Using camera-drones and artificial intelligence to automate warehouse inventory. In *AAAI Spring Symposium: Combining Machine Learning with Knowledge Engineering*, 2021.

296. Muhammad Umar Karim Khan. Towards continual, online, self-supervised depth. *arXiv preprint arXiv:2103.00369*, 2021.

297. Wahab Khawaja, Ismail Guvenc, David W. Matolak, Uwe-Carsten Fiebig, and Nicolas Schneckenburger. A survey of air-to-ground propagation channel modeling for unmanned aerial vehicles. *IEEE Communications Surveys & Tutorials*, 21(3):2361–2391, 2019.

298. M. S. Khusro, A. Q. Hashmi, A. Q. Ansari, and M. Auyenur. A new and Reliable Decision Tree Based Small-Signal Behavioral Modeling of GaN HEMT. *IEEE 62nd International Midwest Symposium on Circuits and Systems (MWSCAS)*, pages 303–306, 2019.

299. Kristine Kiernan, Robert Joslin, and John Robbins. Standardization roadmap for unmanned aircraft systems, version 2.0. 2020.

300. Dae Han Kim, Chun Hyuk Park, and Young J Moon. Aerodynamic analyses on the steady and unsteady loading-noise sources of drone propellers. *International Journal of Aeronautical and Space Sciences*, 20:611–619, 2019.

301. Daewoon Kim and Kwanghee Ko. Camera localization with siamese neural networks using iterative relative pose estimation. *Journal of Computational Design and Engineering*, 9(4):1482–1497, 2022.

302. Jangho Kim, Jeesoo Kim, and Nojun Kwak. Stacknet: Stacking feature maps for continual learning. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops*, pages 242–243, 2020.

303. James Kirkpatrick, Razvan Pascanu, Neil Rabinowitz, Joel Veness, Guillaume Desjardins, Andrei A Rusu, Kieran Milan, John Quan, Tiago Ramalho, Agnieszka Grabska-Barwinska, et al. Overcoming catastrophic forgetting in neural networks. *Proceedings of the national academy of sciences*, 114(13):3521–3526, 2017.

304. Simon Klenk, Lukas Koestler, Davide Scaramuzza, and Daniel Cremers. E-NeRF: Neural Radiance Fields from a Moving Event Camera. August 2022.

305. Yejun Ko, Sunghoon Kim, Kwanghyun Shin, Youngmin Park, Sundo Kim, and Dongsuk Jeon. A 65nm 12.92nj/inference mixed-signal neuromorphic processor for image classification. *IEEE Transactions on Circuits and Systems II: Express Briefs*, pages 1–1, 2023.

306. D. Koboldt, Q. Zhang, D. Larson, D. Shen, M. McLellan, L. Lin, C. Miller, E. Mardis, L. Ding, and R. Wilson. Varscan 2: Somatic mutation and copy number alteration discovery in cancer by exome sequencing. *Genome Research*, 22:568–576, 2012.

307. D. C. Koboldt. Best practices for variant calling in clinical sequencing. *Genome Medicine*, 12:1–13, 2020.

308. T. Kohl, C. Utpatel, V. Schleusener, M. De Filippo, P. Beckert, D. Cirillo, and S. Niemann. Mtbseq: A comprehensive pipeline for whole genome sequence analysis of mycobacterium tuberculosis complex isolates. *PeerJ*, 2018, 2018.

309. O. Kömmerling and M. Kuhn. Design principles for tamper-resistant smartcard processors. *Smartcard*, 99:9–20, 1999.

310. Naruya Kondo, Yuya Ikeda, Andrea Tagliasacchi, Yutaka Matsuo, Yoichi Ochiai, and Shixiang Shane Gu. VaxNeRF: Revisiting the Classic for Voxel-Accelerated Neural Radiance Field, November 2021. arXiv:2111.13112 [cs].

311. I. Kononenko. Machine learning for medical diagnosis: History, state of the art and perspective. *Artificial Intelligence in Medicine*, 23:89–109, 2001.

312. Nicholas Blaise Konzel and Eric Greenwood. Ground-based acoustic measurements of small multirotor aircraft. In *Vertical Flight Society 78th Annual Forum & Technology Display, Fort Worth, TX*, pages 10–12, 2022.

313. J. Korpas, J. Sadlonova, and M. Vrabec. Analysis of the cough sound: an overview. *Pulm Pharmacol*, 9:261–268, 1996.

314. Adam R. Kosiorek, Heiko Strathmann, Daniel Zoran, Pol Moreno, Rosalia Schneider, So?a Mokrá, and Danilo J. Rezende. NeRF-VAE: A Geometry Aware 3D Scene Generative Model, April 2021. arXiv:2104.00587 [cs, stat].

315. S. Kouchaki, Y. Yang, T. M. Walker, A. S. Walker, D. J. Wilson, T. E. A. Peto, D. W. Crook, and D. A. CRyPTIC Consortium; Clifton. Application of machine learning techniques to tuberculosis drug resistance analysis. *Bioinformatics*, 35, 2019.

316. Olga Krestinskaya, Aidana Irmanova, and Alex Pappachen James. Memristive non-idealities: Is there any practical implications for designing neural network chips?. In *IEEE Int. Symp. on Circuits and Systems (ISCAS)*, pages 1–5, 2019.

317. Alex Krizhevsky, Ilya Sutskever, and Geoffrey E Hinton. Imagenet classification with deep convolutional neural networks. *Advances in neural information processing systems*, 25:1097–1105, 2012.

318. Alex Krizhevsky, Ilya Sutskever, and Geoffrey E Hinton. Imagenet classification with deep convolutional neural networks. *Communications of the ACM*, 60(6):84–90, 2017.

319. F. Krueger. Trim galore: A wrapper tool around cutadapt and fastqc to consistently apply quality and adapter trimming to fastq files. *Babraham Institute*, pages undefined–undefined, 2015.

320. Zhengfei Kuang, Fujun Luan, Sai Bi, Zhixin Shu, Gordon Wetzstein, and Kalyan Sunkavalli. PaletteNeRF: Palette-based Appearance Editing of Neural Radiance Fields, January 2023. arXiv:2212.10699 [cs].

321. S Kulkarni and S Jha. Artificial intelligence, radiology, and tuberculosis: A review. *Academic radiology*, 27:71–75, 2020.

322. N. Kumar, S. Bhargava, C. Agrawal, K. George, P. Karki, and D. Baral. Chest radiographs and their reliability in the diagnosis of tuberculosis. *JNMA; journal of the Nepal Medical Association*, 44:138–142, 2005.

323. Minseop Kwak, Jiuhn Song, and Seungryong Kim. GeCoNeRF: Few-shot Neural Radiance Fields via Geometric Consistency, January 2023. arXiv:2301.10941 [cs].

324. Woong Kwon, Jun Ho Park, Minsu Lee, Jongbeom Her, Sang-Hyeon Kim, and Ja-Won Seo. Robust autonomous navigation of unmanned aerial vehicles (uavs) for warehouses? inventory application. *IEEE Robotics and Automation Letters*, 5(1):243–249, 2019.

325. Moussa Labbadi and Mohamed Cherkaoui. Robust adaptive nonsingular fast terminal sliding-mode tracking control for an uncertain quadrotor UAV subjected to disturbances. *ISA Transactions*, 99:290–304, April 2020.

326. Moussa Labbadi, Kamal Elyaalaoui, Mohamed Amine Dabachi, Soufian Lakrit, Mohamed Djemai, and Mohamed Cherkaoui. Robust flight control for a quadrotor under external disturbances based on predefined-time terminal sliding mode manifold. *Journal of Vibration and Control*, 0(0):1–13, April 2022. Publisher: SAGE Publications Ltd STM.

327. J. Laguarta, F. Hueto, and B. Subirana. Covid-19 artificial intelligence diagnosis using only cough recordings. *IEEE Open J Eng Med Biol*, 1:275–281, 2020.

328. N. F. Lahens, Ricciotti E., O. Smirnova, E. Toorens, E. J. Kim, G. Baruzzo, K. E. Hayer, T. Ganguly, J. Schug, and G. R. Grant. A comparison of illumina and ion torrent sequencing platforms in the context of differential gene expression. *BMC genomics*, 18:602, 2017.

329. Qiuxia Lai, Salman Khan, Yongwei Nie, Hanqiu Sun, Jianbing Shen, and Ling Shao. Understanding more about human and machine attention in deep neural networks. *IEEE Transactions on Multimedia*, 23:2086–2099, 2021.

330. G. Lanza, A. De Vita, S. Ravenna, A. D'Aiello, M. Covino, F. Franceschi, and F. Crea. Electrocardiographic findings at presentation and clinical outcome in patients with sars-cov-2 infection. *EP Europace*, 23:123–129, 2020.

331. Christian Lawrence. The husbandry of zebrafish (danio rerio): A review. *Aquaculture*, 269(1):1–20, 2007.

332. R. Layer, C. Chiang, A. Quinlan, and I. Hall. Lumpy: A probabilistic framework for structural variant discovery. *Genome Biology*, 15, 2014.

333. Verica Lazova, Vladimir Guzov, Kyle Olszewski, Sergey Tulyakov, and Gerard Pons-Moll. Control-NeRF: Editable Feature Volumes for Scene Rendering and

Manipulation. In *2023 IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, pages 4329–4339, January 2023. ISSN: 2642-9381.

334. Tuan Le, Jon Glenn Omholt Gjevestad, and Pål Johan, From Online 3d mapping and localization system for agricultural robots. *IFAC-PapersOnLine*, 52(30):167–172, 2019.

335. Bruce W. Lee and Jason Hyung-Jong Lee. Traditional Readability Formulas Compared for English, January 2023. arXiv:2301.02975 [cs].

336. G. Lee, K. Wohlfahrt R. Gommers, F. Waselewski, and A. O'Leary. Pywavelets: A python package for wavelet analysis. In *Journal of Open Source Software*, volume 4, page 1237, 2019.

337. Kibok Lee, Kimin Lee, Jinwoo Shin, and Honglak Lee. Overcoming catastrophic forgetting with unlabeled data in the wild. In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, pages 312–321, 2019.

338. Kyuhwa Lee, Dong Liu, Laetitia Perroud, Ricardo Chavarriaga, and José del R. Millán. A brain-controlled exoskeleton with cascaded event-related desynchronization classifiers. *Special Issue on New Research Frontiers for Intelligent Autonomous Systems*, 90(Supplement C):15–23, April 2017.

339. Soomin Lee, Le Chen, Jiahao Wang, Alexander Liniger, Suryansh Kumar, and Fisher Yu. Uncertainty Guided Policy for Active Robotic 3D Reconstruction Using Neural Radiance Fields. *IEEE Robotics and Automation Letters*, 7(4):12070–12077, October 2022. Conference Name: IEEE Robotics and Automation Letters.

340. Gaston Lenczner, Adrien Chan-Hon-Tong, Nicola Luminari, and Bertrand Le Saux. Weakly-supervised continual learning for class-incremental segmentation. In *IGARSS 2022-2022 IEEE International Geoscience and Remote Sensing Symposium*, pages 4843–4846. IEEE, 2022.

341. R. Lent, F. A. C. Azevedo, C. H. Andrade-Moraes, and A. V. Pinto. How many neurons do you have? Some dogmas of quantitative neuroscience under revision. *Eur J Neurosci*, 35(1):1–9, 2012.

342. Stanley Lewis, Jana Pavlasek, and Odest Chadwicke Jenkins. NARF22: Neural Articulated Radiance Fields for Configuration-Aware Rendering, October 2022.

343. Beibei Li, Jun Yue, Shixiang Jia, Qing Wang, Zhenbo Li, and Zhenzhong Li. Recognition of abnormal body surface characteristics of oplegnathus punctatus. *Information Processing in Agriculture*, 9:575–585, 12 2022.

344. H. Li and R. Durbin. Fast and accurate short read alignment with burrows-wheeler transform. *Bioinformatics*, 25:1754–1760, 2009.

345. Haifeng Li, Hao Jiang, Xin Gu, Jian Peng, Wenbo Li, Liang Hong, and Chao Tao. Clrs: Continual learning benchmark for remote sensing image scene classification. *Sensors*, 20(4):1226, 2020.

346. Honggen Li, Hongbo Chen, Wenke Jing, Yuwei Li, and Rui Zheng. 3D Ultrasound Spine Imaging with Application of Neural Radiance Field Method. In *2021 IEEE International Ultrasonics Symposium (IUS)*, pages 1–4, September 2021. ISSN: 1948-5727.

347. Jiadong Li, Zirui Lian, Zhelin Wu, Lihua Zeng, Liangliang Mu, Ye Yuan, Hao Bai, Zheng Guo, Kangsen Mai, Xiao Tu, and Jianmin Ye. Artificial intelligence?based method for the rapid detection of fish parasites (ichthyophthirius multifiliis, gyrodactylus kobayashii, and argulus japonicus). *Aquaculture*, 563, 1 2023.

348. Jianxun Li, Hao Liu, Kin Keung Lai, and Bhagwat Ram. Vehicle and UAV Collaborative Delivery Path Optimization Model. *Mathematics*, 10(20):3744, January 2022. Number: 20 Publisher: Multidisciplinary Digital Publishing Institute.

349. Jing Shuang Li, Anish A. Sarma, Terrence J. Sejnowski, and John C. Doyle. Internal feedback in the cortical perception-action loop enables fast and accurate behavior, 2022.

350. Ruihao Li, Sen Wang, Zhiqiang Long, and Dongbing Gu. Undeepvo: Monocular visual odometry through unsupervised deep learning. In *2018 IEEE International Conference on Robotics and Automation (ICRA)*, pages 7286–7291. IEEE, 2018.

351. S. Li, C. De Wagter, C. C. de Visser, Q. P. Chu, G. C. H. E. de Croon, et al. In-flight model parameter and state estimation using gradient descent for high-speed flight. *International Journal of Micro Air Vehicles*, 11:1756829319833685, 2019.

352. Shuo Li, Michaël MOI Ozo, Christophe De Wagter, Guido CHE de Croon, et al. Autonomous drone race: A computationally efficient vision-based navigation and control strategy. *Robotics and Autonomous Systems*, 133:103621, 2020.

353. Shuo Li, Erik van der Horst, Philipp Duernay, Christophe De Wagter, and Guido C. H. E. de Croon. Visual model-predictive localization for computationally efficient autonomous racing of a 72-g drone. *Journal of Field Robotics*, 37(4):667–692, 2020.

354. Shuo Li, Erik van der Horst, Philipp Duernay, Christophe De Wagter, Guido CHE de Croon, et al. Visual model-predictive localization for computationally efficient autonomous racing of a 72-g drone. *Journal of Field Robotics*, 37(4):667–692, 2020.

355. Shuo Li, Erik van der Horst, Philipp Duernay, Christophe De Wagter, and Guido C. H. E. de Croon. Visual model-predictive localization for computationally efficient autonomous racing of a 72-gram drone. *arXiv: Robotics*, 2019.

356. Sicheng Li, Hao Li, Yue Wang, Yiyi Liao, and Lu Yu. SteerNeRF: Accelerating NeRF Rendering via Smooth Viewpoint Trajectory, December 2022. arXiv:2212.08476 [cs].

357. Weixin Li, Vijay Mahadevan, and Nuno Vasconcelos. Anomaly detection and localization in crowded scenes. *IEEE transactions on pattern analysis and machine intelligence*, 36(1):18–32, 2013.

358. Wentong Li, Yijie Chen, Kaixuan Hu, and Jianke Zhu. Oriented reppoints for aerial object detection. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 1829–1838, 2022.

359. Yuan Li, Zhi-Hao Lin, David Forsyth, Jia-Bin Huang, and Shenlong Wang. ClimateNeRF: Physically-based Neural Rendering for Extreme Climate Synthesis, November 2022. arXiv:2211.13226 [cs].

360. Zhi Li, Jinghao Xin, and Ning Li. Autonomous exploration and mapping for mobile robots via cumulative curriculum reinforcement learning. *arXiv preprint arXiv:2302.13025*, 2023.

361. Julien Li-Chee-Ming and Costas Armenakis. Uav navigation system using line-based sensor pose estimation. *Geo-spatial information science*, 21(1):2–11, 2018.

362. Susan Liang, Chao Huang, Yapeng Tian, Anurag Kumar, and Chenliang Xu. AV-NeRF: Learning Neural Fields for Real-World Audio-Visual Scene Synthesis, February 2023. arXiv:2302.02088 [cs, eess].

363. D. Lim, J. W Lee, B. Gassend, G E. Suh, M. Van Dijk, and S. Devadas. Extracting secret keys from integrated circuits. *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, 13(10):1200–1205, 2005.

364. Chen-Hsuan Lin, Wei-Chiu Ma, Antonio Torralba, and Simon Lucey. BARF: Bundle-Adjusting Neural Radiance Fields. In *2021 IEEE/CVF International Conference on Computer Vision (ICCV)*, pages 5721–5731, October 2021. ISSN: 2380-7504.

365. Ping-Ju Lin, Tianyu Jia, Chong Li, Tianyi Li, Chao Qian, Zhibin Li, Yu Pan, and Linhong Ji. Cnn-based prognosis of bci rehabilitation using eeg from first session

bci training. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 29:1936–1943, 2021.

366. Yimin Lin, Zhaoxiang Liu, Jianfeng Huang, Chaopeng Wang, Guoguang Du, Jinqiang Bai, and Shiguo Lian. Deep global-relative networks for end-to-end 6-dof visual localization and odometry. In *Pacific Rim International Conference on Artificial Intelligence*, pages 454–467. Springer, 2019.

367. Yunzhi Lin, Thomas Müller, Jonathan Tremblay, Bowen Wen, Stephen Tyree, Alex Evans, Patricio A. Vela, and Stan Birchfield. Parallel Inversion of Neural Radiance Fields for Robust Pose Estimation, October 2022.

368. Jingwang Ling, Zhibo Wang, and Feng Xu. ShadowNeuS: Neural SDF Reconstruction by Shadow Ray Supervision, November 2022. arXiv:2211.14086 [cs].

369. Jing Shuang Lisa Li. Internal feedback in biological control: Locality and system level synthesis. In *2022 American Control Conference (ACC)*, pages 474–479, 2022.

370. Daniil Lisus and Connor Holmes. Towards Open World NeRF-Based SLAM, January 2023. arXiv:2301.03102 [cs].

371. Ta Kang Liu, Hwung Hweng Hwung, Jin Li Yu, and Ruey Chy Kao. Managing deep ocean water development in taiwan: Experiences and future challenges. *Ocean and Coastal Management*, 51:126–140, 2008.

372. Wei Liu, Dragomir Anguelov, Dumitru Erhan, Christian Szegedy, Scott Reed, Cheng-Yang Fu, and Alexander C Berg. Ssd: Single shot multibox detector. In *Computer Vision–ECCV 2016: 14th European Conference, Amsterdam, The Netherlands, October 11–14, 2016, Proceedings, Part I 14*, pages 21–37. Springer, 2016.

373. Y. Liu, D. Shukla, H. Newman, and Y. Zhu. Soft wearable sensors for monitoring symptoms of covid-19 and other respiratory diseases: a review. *Progress in Biomedical Engineering*, 4:12001, 2022.

374. Z. Liu, X. Hu, L. Xu, W. Weidong, and F. M. Ghannouchi. Low computational complexity digital predistortion based on convolutional neural network for wideband power amplifiers. *IEEE Transactions on Circuits and Systems II: Express Briefs*, 69(3):1702–1706, 2022.

375. K. Lohmann and C. Klein. Next generation sequencing and the future of genetic diagnosis. *Neurotherapeutics*, 11:699, 2014.

376. Vincenzo Lomonaco and Davide Maltoni. Core50: a new dataset and benchmark for continuous object recognition. *arXiv preprint arXiv:1705.03550*, 2017.

377. Vincenzo Lomonaco, Davide Maltoni, and Lorenzo Pellegrini. Fine-grained continual learning. *arXiv preprint arXiv:1907.03799*, 1, 2019.

378. Vincenzo Lomonaco, Davide Maltoni, and Lorenzo Pellegrini. Rehearsal-free continual learning over small non-iid batches. In *CVPR Workshops*, volume 1, page 3, 2020.

379. B. Long, W. Brady, R. Bridwell, M. Ramzy, T. Montrief, M. Singh, and M. Gottlieb. Electrocardiographic manifestations of covid-19. *Am J Emerg Med*, 41:96–103, 2021.

380. Shing Yan Loo, Moein Shakeri, Sai Hong Tang, Syamsiah Mashohor, and Hong Zhang. Online mutual adaptation of deep depth prediction and visual slam. *arXiv preprint arXiv:2111.04096*, 2021.

381. J. T. H. Loong, N. A. N. Hashim, M. S. Hamid, and F. A. Hamid. Performance analysis of CMOS-memristor hybrid ring oscillator physically unclonable function (RO-PUF). In *International Conference on Semiconductor Electronics (ICSE)*, pages 304–307. IEEE, 2016.

382. Manuel Lopez and Jose Martinez-Carranza. A cnn-based approach for cable-suspended load lifting with an autonomous mav. *Journal of Intelligent & Robotic Systems*, 105(2):32, 2022.

383. Cewu Lu, Jianping Shi, and Jiaya Jia. Abnormal event detection at 150 fps in matlab. In *Proceedings of the IEEE international conference on computer vision*, pages 2720–2727, 2013.

384. G. Lu, S. Huang, S. Ying, Y. Zeng, Y. Yao, F. Ning, and Feng. Z. Low-complexity power amplifier model driven wireless emitter identification using random forest. *IEEE Globecom Workshops (GC Wkshps)*, pages 1–12, 2019.

385. H. Lu, F. Giordano, and Z. Ning. Oxford nanopore minion sequencing and genome assembly. *Genomics, Proteomics and Bioinformatics*, 14:265–279, 2016.

386. Hanchen Lu, Hongming Shen, Bailing Tian, Xuewei Zhang, Zhenzhou Yang, and Qun Zong. Flight in gps-denied environment: Autonomous navigation system for micro-aerial vehicle. *Aerospace Science and Technology*, 124:107521, 2022.

387. Miguel ángel Luján, María Verónica Jimeno, Jorge Mateo Sotos, Jorge Javier Ricarte, and Alejandro L. Borja. A survey on eeg signal processing techniques and machine learning: Applications to the neurofeedback of autobiographical memory deficits in schizophrenia. *Electronics*, 10(23), 2021.

388. Weixin Luo, Wen Liu, and Shenghua Gao. A revisit of sparse coding based anomaly detection in stacked rnn framework. In *Proceedings of the IEEE international conference on computer vision*, pages 341–349, 2017.

389. Tianxiang Ma, Bingchuan Li, Qian He, Jing Dong, and Tieniu Tan. Semantic 3D-aware Portrait Synthesis and Manipulation Based on Compositional Neural Radiance Field, February 2023. arXiv:2302.01579 [cs].

390. J. Maarsingh, S. Yang, J. Park, and S. Haydel. Comparative transcriptomics reveals prrab-mediated control of metabolic, respiration, energy-generating, and dormancy pathways in mycobacterium smegmatis. *BMC Genomics*, 20:942, 2019.

391. Ratnesh Madaan, Nicholas Gyde, Sai Vemprala, Matthew Brown, Keiko Nagami, Tim Taubner, Eric Cristofalo, Davide Scaramuzza, Mac Schwager, Ashish Kapoor, et al. Airsim drone racing lab. pages 177–191, 2020.

392. C. Madrazo-Moya, I. Cancino-Muñoz, B. Cuevas-Cordoba, V. Gonzalez-Covarrubias, M. Barbosa-Amezcua, X. Soberón, R. Muñiz-Salazar, A. Martínez-Guarneros, C. Bäcker, J. Zarrabal-Meza, C. Sampieri-Ramirez, A. Enciso-Moreno, M. Lauzardo, I. Comas, and R. Zenteno-Cuevas. Whole genomic sequencing as a tool for diagnosis of drug and multidrug-resistance tuberculosis in an endemic region in mexico. *PLoS ONE*, 14:e0213046, 2019.

393. Dominic Maggio, Marcus Abate, Jingnan Shi, Courtney Mario, and Luca Carlone. Loc-NeRF: Monte Carlo Localization using Neural Radiance Fields. September 2022.

394. Trupti Mahendrakar, Basilio Caruso, Van Minh Nguyen, Ryan T. White, and Todd Steffen. 3D Reconstruction of Non-cooperative Resident Space Objects using Instant NGP-accelerated NeRF and D-NeRF, February 2023. arXiv:2301.09060 [cs].

395. A. Maiti, J. Casarona, L. McHale, and P. Schaumont. A large scale characterization of RO-PUF. In *International Symposium on Hardware-Oriented Security and Trust (HOST)*, pages 94–99. IEEE, 2010.

396. A. Maiti, V. Gunreddy, and P. Schaumont. A systematic method to evaluate and compare the performance of physical unclonable functions. In *Embedded systems design with FPGAs*, pages 245–267. Springer, 2013.

397. Stephane Mallat et al. A wavelet tour of signal processing: the sparce way. *AP Professional, Third Edition, London*, 2009.

398. Davide Maltoni and Vincenzo Lomonaco. Continuous learning in single-incremental-task scenarios. *Neural Networks*, 116:56–73, 2019.

399. Dipan Mandal, Abhilash Jain, and Sreenivas Subramoney. Unsupervised learning of depth, camera pose and optical flow from monocular video. *arXiv preprint arXiv:2205.09821*, 2022.

400. Dilip Mandloi and Rajeev Arya. Seamless connectivity with 5G enabled unmanned aerial vehicles base stations using machine programming approach. *Expert Systems*, 39(5):e12828, 2022.

401. Abhishek Manjrekar, Dr Jha, Pratiksha Jagtap, Vinay Yadav, et al. Warehouse inventory management with cycle counting using drones. *Siddhi and Jagtap, Pratiksha and Yadav, Vinay, Warehouse Inventory Management with Cycle Counting Using Drones (May 7, 2021)*, 2021.

402. A. Manson, K. Cohen, T. Abeel, C. Desjardins, D. Armstrong, C. Barry, J. Brand, S. Chapman, S. Cho, A. Gabrielian, J. Gomez, A. Jodals, M. Joloba, P. Jureen, J. Lee, L. Malinga, M. Maiga, D. Nordenberg, E. Noroc, E. Romancenco, A. Salazar, W. Ssengooba, A. Velayati, K. Winglee, A. Zalutskaya, L. Via, G. Cassell, S. Dorman, J. Ellner, P. Farnia, J. Galagan, A. Rosenthal, V. Crudu, D. Homorodean, P. Hsueh, S. Narayanan, A. Pym, A. Skrahina, S. Swaminathan, M. Van Der Walt, D. Alland, W. Bishai, T. Cohen, S. Hoffner, B. Birren, and A. Earl. Genomic analysis of globally diverse mycobacterium tuberculosis strains provides insights into the emergence and spread of multidrug resistance. *Nature Genetics*, 49:395–402, 2017.

403. José Martínez-Carranza, Richard Bostock, Simon Willcox, Ian Cowling, and Walterio Mayol-Cuevas. Indoor mav auto-retrieval using fast 6d relocalisation. *Advanced Robotics*, 30(2):119–130, 2016.

404. Jose Martinez-Carranza and Caleb Rascon. A review on auditory perception for unmanned aerial vehicles. *Sensors*, 20(24):7276, 2020.

405. Jose Martinez-Carranza and Leticia Oyuki Rojas-Perez. Warehouse inspection with an autonomous micro air vehicle. *Unmanned Systems*, pages 1–14, 2022.

406. Roger Marí, Gabriele Facciolo, and Thibaud Ehret. Sat-NeRF: Learning multi-view satellite photogrammetry with transient objects and shadow modeling using RPC cameras. In *2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, pages 1310–1320, June 2022. ISSN: 2160-7516.

407. Ruben Mascaro, Lucas Teixeira, Timo Hinzmann, Roland Siegwart, and Margarita Chli. Gomsf: Graph-optimization based multi-sensor fusion for robust uav pose estimation. In *2018 IEEE International Conference on Robotics and Automation (ICRA)*, pages 1421–1428. IEEE, 2018.

408. S. Matos, S. Birring, I. Pavord, and D. Evans. An automated system for 24-h monitoring of cough frequency: the leicester cough monitor. *IEEE Trans Biomed Eng*, 54:1472–1479, 2007.

409. A. McKenna, M. Hanna, E. Banks, A. Sivachenko, K. Cibulskis, A. Kernytsky, K. Garimella, D. Altshuler, S. Gabriel, M. Daly, and M.A. DePristo. The genome analysis toolkit: A mapreduce framework for analyzing next-generation dna sequencing data. *Genome Research*, 20:1297–1303, 2010.

410. E. Mehraeen, S. Seyed Alinaghi, A. Nowroozi, O. Dadras, S. Alilou, P. Shobeiri, F. Behnezhad, and A. Karimi. A systematic review of ecg findings in patients with covid-19. *Indian Heart J*, 72:500–507, 2020.

411. Ramin Mehran, Alexis Oyama, and Mubarak Shah. Abnormal crowd behavior detection using social force model. In *2009 IEEE conference on computer vision and pattern recognition*, pages 935–942. IEEE, 2009.

412. M. Melek. Diagnosis of covid-19 and non-covid-19 patients by classifying only a single cough sound. *Neural Computing and Applications*, 33:17621–17632, 2021.

413. Daniel Mellinger and Vijay Kumar. Minimum snap trajectory generation and control for quadrotors. In *2011 IEEE international conference on robotics and automation*, pages 2520–2525. IEEE, 2011.

414. Lili Meng, Jianhui Chen, Frederick Tung, James J. Little, and Clarence W. de Silva. Exploiting random rgb and sparse features for camera pose estimation. In *BMVC*, 2016.

415. Geison Pires Mesquita, Margarita Mulero-Pázmány, Serge A. Wich, and José Domingo Rodríguez-Teijeiro. Terrestrial megafauna response to drone noise levels in ex situ areas. *Drones*, 6(11):333, 2022.

416. Umberto Michieli and Pietro Zanuttigh. Incremental learning techniques for semantic segmentation. In *Proceedings of the IEEE/CVF International Conference on Computer Vision Workshops*, pages 0–0, 2019.

417. Ben Mildenhall, Pratul P. Srinivasan, Matthew Tancik, Jonathan T. Barron, Ravi Ramamoorthi, and Ren Ng. NeRF: Representing Scenes as Neural Radiance Fields for View Synthesis, August 2020. arXiv:2003.08934 [cs].

418. Michael J. Milford and Gordon F. Wyeth. Seqslam: Visual route-based navigation for sunny summer days and stormy winter nights. In *2012 IEEE International Conference on Robotics and Automation*, pages 1643–1649. IEEE, 2012.

419. Yuhang Ming, Weicai Ye, and Andrew Calway. idf-slam: End-to-end rgb-d slam with neural implicit mapping and deep feature tracking. *arXiv preprint arXiv:2209.07919*, 2022.

420. P. Miotto, F. Forti, A. Ambrosi, D. Pellin, D. Veiga, G. Balazsi, M. Gennaro, C. Di Serio, D. Ghisotti, and D. Cirillo. Genome-wide discovery of small rnas in mycobacterium tuberculosis. *PLoS ONE*, 7:e51950, 2012.

421. Roger Miranda-Colorado, Luis T. Aguilar, and José E. Herrero-Brito. Reduction of power consumption on quadrotor vehicles via trajectory design and a controller-gains tuning stage. *Aerospace Science and Technology*, 78:280–296, 2018.

422. F. Mkadem, A. Islam, and S. Boumaiza. Multi-band complexity-reduced generalized-memory-polynomial power-amplifier digital predistortion. *IEEE Transactions on Microwave Theory and Techniques*, 64(6):1763–1774, 2016.

423. Omid Mofid, Saleh Mobayen, Chunwei Zhang, and Balasubramanian Esakki. Desired tracking of delayed quadrotor UAV under model uncertainty and wind disturbance using adaptive super-twisting terminal sliding mode control. *ISA Transactions*, 123(2022):455–471, April 2022.

424. Abdirahman Mohamud and Ashwin Ashok. Drone noise reduction through audio waveguiding. In *Proceedings of the 4th ACM Workshop on Micro Aerial Vehicle Networks, Systems, and Applications*, pages 92–94, 2018.

425. Vikram Mohanty, Shubh Agrawal, Shaswat Datta, Arna Ghosh, Vishnu Dutt Sharma, and Debashish Chakravarty. Deepvo: A deep learning approach for monocular visual odometry. *arXiv preprint arXiv:1611.06069*, 2016.

426. M. Molnar and L. Ilie. Correcting illumina data. *Briefings in Bioinformatics*, 16:588–599, 2014.

427. Hyungpil Moon, Jose Martinez-Carranza, Titus Cieslewski, Matthias Faessler, Davide Falanga, Alessandro Simovic, Davide Scaramuzza, Shuo Li, Michael Ozo, Christophe

De Wagter, et al. Challenges and implemented technologies used in autonomous drone racing. *Intelligent Service Robotics*, 12(2):137–148, 2019.

428. Hyungpil Moon, Yu Sun, Jacky Baltes, Si Jung Kim, et al. The iros 2016 competitions [competitions]. *IEEE Robotics and Automation Magazine*, 24(1):20–29, 2017.

429. Koichiro Morihiro, Teijiro Isokawa, Nobuyuki Matsui, and Haruhiko Nishimura. Effects of chaotic exploration on reinforcement learning in target capturing task. *International Journal of Knowledge-based and Intelligent Engineering Systems*, 12(5-6):369–377, January 2008. Publisher: IOS Press.

430. Bashir I Morshed and Abdulhalim Khan. A brief review of brain signal monitoring technologies for bci applications: challenges and prospects. *Journal of Bioengineering & Biomedical Sciences*, 4(1):1, 2014.

431. Luca Mottola and Gian Pietro Picco. Programming wireless sensor networks: Fundamental concepts and state of the art. *ACM Comput. Surv.*, 43(3), apr 2011.

432. Sayed Hamid Mousavian and Hamid Reza Koofigar. Identification-based robust motion control of an AUV: Optimized by particle swarm optimization algorithm. *Journal of Intelligent & Robotic Systems*, 85(2):331–352, February 2017.

433. Muhammad F Mridha, Sujoy Chandra Das, Muhammad Mohsin Kabir, Aklima Akter Lima, Md Rashedul Islam, and Yutaka Watanobe. Brain-computer interface: Advancement and challenges. *Sensors*, 21(17):5746, 2021.

434. Shiv Kumar Mudgal, Suresh K Sharma, Jitender Chaturvedi, and Anil Sharma. Brain computer interface advancement in neurosciences: Applications and issues. *Interdisciplinary Neurosurgery*, 20:100694, 2020.

435. Mark W Mueller, Markus Hehn, and Raffaello D'Andrea. A computationally efficient motion primitive for quadrocopter trajectory generation. *IEEE Transactions on Robotics*, 31(6):1294–1310, 2015.

436. M. S. Müller, S. Urban, and B. Jutzi. Squeezeposenet: Image based pose regression with small convolutional neural networks for real time uas navigation. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 4:49, 2017.

437. Raul Mur-Artal, Jose Maria Martinez Montiel, and Juan D. Tardos. Orb-slam: a versatile and accurate monocular slam system. *IEEE Transactions on Robotics*, 31(5):1147–1163, 2015.

438. Raul Mur-Artal and Juan D. Tardós. Orb-slam2: An open-source slam system for monocular, stereo, and rgb-d cameras. *IEEE Transactions on Robotics*, 33(5):1255–1262, 2017.

439. Raul Mur-Artal and Juan D. Tardós. Orb-slam2: an open-source slam system for monocular, stereo and rgb-d cameras. *IEEE Transactions on Robotics*, 2017.

440. M. Murugesan and R. Sukanesh. Automated detection of brain tumor in eeg signals using artificial neural networks. In *2009 International Conference on Advances in Computing, Control, and Telecommunication Technologies*, pages 284–288, 2009.

441. M. Mustapa and M. Niamat. A comparative study of ring oscillator PUFs implementation on different fpga families. In *Journal of Physics: Conference Series*, volume 1962, page 012054. IOP Publishing, 2021.

442. P. Muñoz-Benavent, G. Andreu-García, José M. Valiente-González, V. Atienza-Vanacloig, V. Puig-Pons, and V. Espinosa. Enhanced fish bending model for automatic tuna sizing using computer vision. *Computers and Electronics in Agriculture*, 150:52–61, 2018.

443. A. Nachiappan, K. Rahbar, X. Shi, E. Guy, E. Barbosa, G. Shroff, D. Ocazionez, A. Schlesinger, S. Katz, and M. Hammer. Pulmonary tuberculosis: Role of radiology in

diagnosis and management. *Radiographics : a review publication of the Radiological Society of North America, Inc.*, 37:52–72, 2017.

444. Michael Narine. Active noise cancellation of drone propeller noise through waveform approximation and pitch-shifting. 2020.

445. C. Neuper and G. Pfurtscheller. Evidence for distinct beta resonance frequencies in human EEG related to specific sensorimotor cortical areas. *Clinical Neurophysiology*, 112(11):2084–2097, November 2001.

446. Christa Neuper, Gernot R. Müller, Andrea Kübler, Niels Birbaumer, and Gert Pfurtscheller. Clinical application of an eeg-based brain–computer interface: a case study in a patient with severe motor impairment. *Clinical neurophysiology*, 114(3):399–409, 2003.

447. Ngoc Phi Nguyen, Nguyen Xuan Mung, Ha Le Nhu Ngoc Thanh, Tuan Tu Huynh, Ngoc Tam Lam, and Sung Kyung Hong. Adaptive Sliding Mode Control for Attitude and Altitude System of a Quadcopter UAV via Neural Network. *IEEE Access*, 9:40076–40085, 2021. Conference Name: IEEE Access.

448. Truong Nguyen. *Wavelets and filter banks*. Wellesley-Cambridge Press, 1996.

449. S. Niemann, C. Köser, S. Gagneux, C. Plinke, S. Homolka, H. Bignell, R. Carter, R. Cheetham, A. Cox, N. Gormley, P. Kokko-Gonzales, L. Murray, R. Rigatti, V. Smith, F. Arends, H. Cox, G. Smith, and J. Archer. Genomic diversity among drug sensitive and multidrug resistant isolates of mycobacterium tuberculosis with identical dna fingerprints. *PLoS ONE*, 4:e7407, 2009.

450. David Nilsson, Aleksis Pirinen, Erik Gärtner, and Cristian Sminchisescu. Embodied learning for lifelong visual perception. *arXiv preprint arXiv:2112.14084*, 2021.

451. Sivapong Nilwong, Delowar Hossain, Shin-ichiro Kaneko, and Genci Capi. Deep learning-based landmark detection for mobile robot outdoor localization. *Machines*, 7(2):25, 2019.

452. C. Nimmo, L. Shaw, R. Doyle, R. Williams, K. Brien, C. Burgess, J. Breuer, F. Balloux, and A. Pym. Whole genome sequencing mycobacterium tuberculosis directly from sputum identifies more genetic diversity than sequencing from culture. *BMC Genomics*, 20:389, 2019.

453. Ryusuke Noda, Teruaki Ikeda, Toshiyuki Nakata, and Hao Liu. Characterization of the low-noise drone propeller with serrated gurney flap. *Frontiers in Aerospace Engineering*, page 8, 2022.

454. Ryusuke Noda, Toshiyuki Nakata, Teruaki Ikeda, Di Chen, Yuma Yoshinaga, Kenta Ishibashi, Chen Rao, and Hao Liu. Development of bio-inspired low-noise propeller for a drone. *Journal of Robotics and Mechatronics*, 30(3):337–343, 2018.

455. Nvidia Corporation . `https://www.nvidia.com/`, Noviembre 2020.

456. Shu Lih Oh, Jahmunah Vicnesh, Edward J. Ciaccio, Rajamanickam Yuvaraj, and U. Rajendra Acharya. Deep convolutional neural network model for automated diagnosis of schizophrenia using eeg signals. *Applied Sciences*, 9(14), 2019.

457. World Healt Organizartion. Catalogue of mutations in mycobacterium tuberculosis complex and their association with drug resistance. Technical report, World Healt Organizartion, 2021.

458. World Health Organization. The use of next-generation sequencing technologies for the detection of mutations associated with drug resistance in mycobacterium tuberculosis complex: technical guide. Technical documents, World Health Organization, 2018.

459. World Health Organization et al. *Environmental noise guidelines for the European region*. World Health Organization. Regional Office for Europe, 2018.

460. Joseph Ortiz, Alexander Clegg, Jing Dong, Edgar Sucar, David Novotny, Michael Zollhoefer, and Mustafa Mukadam. isdf: Real-time neural signed distance fields for robot perception. *arXiv preprint arXiv:2204.02296*, 2022.

461. Joseph Ortiz, Talfan Evans, Edgar Sucar, and Andrew J. Davison. Incremental abstraction in distributed probabilistic slam graphs. In *2022 International Conference on Robotics and Automation (ICRA)*, pages 7566–7572. IEEE, 2022.

462. Felix Ott, Tobias Feigl, Christoffer Loffler, and Christopher Mutschler. Vipr: visual-odometry-aided pose regression for 6dof camera localization. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops*, pages 42–43, 2020.

463. Natasha Padfield, Jaime Zabalza, Huimin Zhao, Valentin Masero, and Jinchang Ren. Eeg-based brain-computer interfaces using motor-imagery: Techniques and challenges. *Sensors*, 19(6), 2019.

464. M. Pahar, M. Klopper, B. Reeve, R. Warren, G. Theron, A. Diacon, and T. Niesler. Automatic tuberculosis and covid-19 cough classification using deep learning. In *2022 International Conference on Electrical, Computer and Energy Technologies (ICE-CET)*, pages 1–9, 2022.

465. Jen-I. Pan, Jheng-Wei Su, Kai-Wen Hsiao, Ting-Yu Yen, and Hung-Kuo Chu. Sampling Neural Radiance Fields for Refractive Objects. In *SIGGRAPH Asia 2022 Technical Communications*, pages 1–4, December 2022. arXiv:2211.14799 [cs].

466. Bai. F Li. Z Li. H Mao. K. Pang. M, Zhu. Q and Tian. Y. Height-dependent LoS probability model for A2G mmWave communications under built-up scenarios. *arXiv preprint arXiv:2109.02263*, 2021.

467. Prabin Kumar Panigrahi and Sukant Kishoro Bisoy. Localization strategies for autonomous mobile robots: A review. *Journal of King Saud University-Computer and Information Sciences*, 34(8):6019–6039, 2022.

468. A. D. Pano-Azucena, E. Tlelo-Cuautle, B. Ovilla-Martinez, L. G. de la Fraga, and R. Li. Pipeline FPGA-based implementations of ANNs for the prediction of up to 600-steps-ahead of chaotic time series. *Journal of Circuits, Systems, and Computers*, 30(9):2150164, 2021.

469. R. Pappu, B. Recht, J. Taylor, and N. Gershenfeld. Physical one-way functions. *Science*, 297(5589):2026–2030, 2002.

470. Chun Hyuk Park, Dae Han Kim, and Young J. Moon. Computational study on the steady loading noise of drone propellers: Noise source modeling with the lattice boltzmann method. *International Journal of Aeronautical and Space Sciences*, 20(4):858–869, 2019.

471. Keunhong Park, Utkarsh Sinha, Jonathan T. Barron, Sofien Bouaziz, Dan B. Goldman, Steven M. Seitz, and Ricardo Martin-Brualla. Nerfies: Deformable Neural Radiance Fields, September 2021. arXiv:2011.12948 [cs].

472. Keunhong Park, Utkarsh Sinha, Peter Hedman, Jonathan T. Barron, Sofien Bouaziz, Dan B. Goldman, Ricardo Martin-Brualla, and Steven M. Seitz. HyperNeRF: A Higher-Dimensional Representation for Topologically Varying Neural Radiance Fields, September 2021. arXiv:2106.13228 [cs].

473. Seonghun Park, Jisoo Ha, Jimin Park, Kyeonggu Lee, and Chang-Hwan Im. Brain-controlled, ar-based home automation system using ssvep-based brain-computer interface and eog-based eye tracker: A feasibility study for the elderly end user. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 31:544–553, 2023.

474. Navneet Paul. TransNeRF – Improving Neural Radiance fields using transfer learning for efficient scene reconstruction, 2021. Publisher: University of Twente.

475. Dario Pavllo, David Joseph Tan, Marie-Julie Rakotosaona, and Federico Tombari. Shape, Pose, and Appearance from a Single Image via Bootstrapped Radiance Field Inversion, November 2022. arXiv:2211.11674 [cs].

476. Naama Pearl, Tali Treibitz, and Simon Korman. NAN: Noise-Aware NeRFs for Burst-Denoising. In *2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 12662–12671, June 2022. ISSN: 2575-7075.

477. Shaotong Pei, Rui Yang, Yunpeng Liu, Wenxuan Xu, and Gonghao Zhang. Research on 3D reconstruction technology of large-scale substation equipment based on NeRF. *IET Science, Measurement & Technology*, n/a(n/a). ˙eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1049/smt2.12131.

478. Lorenzo Pellegrini, Gabrile Graffieti, Vincenzo Lomonaco, and Davide Maltoni. Latent replay for real-time continual learning. *arXiv preprint arXiv:1912.01100*, 2019.

479. Lorenzo Pellegrini, Vincenzo Lomonaco, Gabriele Graffieti, and Davide Maltoni. Continual learning at the edge: Real-time training on smartphone devices. *arXiv preprint arXiv:2105.13127*, 2021.

480. Fabian Peller-Konrad, Rainer Kartmann, Christian R. G. Dreher, Andre Meixner, Fabian Reister, Markus Grotz, and Tamim Asfour. A memory system of a robot cognitive architecture and its implementation in armarx. *Robotics and Autonomous Systems*, page 104415, 2023.

481. Rafael Perez-Torres, Cesar Torres-Huitzil, and Hiram Galeana-Zapien. An on-device cognitive dynamic systems inspired sensing framework for the iot. *IEEE Communications Magazine*, 56(9):154–161, 2018.

482. Anders Persson. The coriolis effect. *History of Meteorology*, 2:1–24, 2005.

483. Christian Pfeiffer and Davide Scaramuzza. Expertise affects drone racing performance. *arXiv preprint arXiv:2109.07307*, 2021.

484. Christian Pfeiffer and Davide Scaramuzza. Human-piloted drone racing: Visual processing and control. *IEEE Robotics and Automation Letters*, 6(2):3467–3474, 2021.

485. Huy Xuan Pham, Halil Ibrahim Ugurlu, Jonas Le Fevre, Deniz Bardakci, and Erdal Kayacan. Deep learning for vision-based navigation in autonomous drone racing. In *Deep Learning for Robot Perception and Cognition*, pages 371–406. Elsevier, 2022.

486. Yalong Pi, Nipun D Nath, and Amir H Behzadan. Convolutional neural networks for object detection in aerial imagery for disaster response and recovery. *Advanced Engineering Informatics*, 43:101009, 2020.

487. O. R. Pinheiro, L. R. G. Alves, and J. R. D. Souza. Eeg signals classification: Motor imagery for driving an intelligent wheelchair. *IEEE Latin America Transactions*, 16(1):254–259, 2018.

488. Maciej Podsędkowski, Rafał Konopiński, and Michał Lipian. Sound noise properties of variable pitch propeller for small uav. In *2022 International Conference on Unmanned Aircraft Systems (ICUAS)*, pages 1025–1029. IEEE, 2022.

489. S. Preethi, A. Revathi, and M. Murugan. *Exploration of Cough Recognition Technologies Grounded on Sensors and Artificial Intelligence*, pages 193–214. Springer Singapore, 2020.

490. A. Proaño, M. Bravard, B. Tracey, J. López, G. Comina, M. Zimic, J. Coronel, G. Lee, L. Caviedes, J. L. Cabrera, A. Salas, E. Ticona, D. Kirwan, J. Friedland, C. Evans, D. Moore, and R. Gilman. Protocol for studying cough frequency in people with pulmonary tuberculosis. *BMJ Open*, 6:e010365, 2016.

491. Jesus Pestana Puerta, Michael Maurer, Friedrich Fraundorfer, and Horst Bischof. Towards an autonomous vision-based inventory drone. In *Logistikwerkstatt Graz 2019: Solution day–?update ?*, 2019.

492. Albert Pumarola, Enric Corona, Gerard Pons-Moll, and Francesc Moreno-Noguer. D-NeRF: Neural Radiance Fields for Dynamic Scenes. In *2021 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 10313–10322, June 2021. ISSN: 2575-7075.

493. C. Qin, D. Yao, Y. Shi, and Z. Song. Computer-aided detection in chest radiography based on artificial intelligence: A survey. *BioMedical Engineering Online*, 17:1–23, 2018.

494. Hongwei Qin, Xiu Li, Jian Liang, Yigang Peng, and Changshui Zhang. Deepfish: Accurate underwater live fish recognition with a deep architecture. *Neurocomputing*, 187:49–58, 4 2016.

495. Z. Qin. Screening and triage for tb using computer-aided detection (cad) technology and ultra-portable x-ray systems: A practical guide. Technical report, Stop TB Partnership, 2022.

496. Z. Qin, S. Ahmed, M. Sarker, K. Paul, A. Adel, T. Naheyan, R. Barrett, S. Banu, and J. Creswell. Tuberculosis detection from chest x-rays for triaging in a high tuberculosis-burden setting: an evaluation of five artificial intelligence algorithms. *The Lancet. Digital health*, 3:e543–e554, 2021.

497. M. A. Quail, M. Smith, P. Coupland, T. D. Otto, R. S. Harris, T. R. Connor, A. Bertoni, H. P. Swerdlow, and Y. Gu. A tale of three next generation sequencing platforms: comparison of ion torrent, pacific biosciences and illumina miseq sequencers. *BMC Genomics*, 13:1–13, 2012.

498. Morgan Quigley, Ken Conley, Brian Gerkey, Josh Faust, Tully Foote, Jeremy Leibs, Rob Wheeler, Andrew Y Ng, et al. Ros: an open-source robot operating system. In *ICRA workshop on open source software*, volume 3, page 5. Kobe, Japan, 2009.

499. Sadegh Rabiee and Joydeep Biswas. Iv-slam: Introspective vision for simultaneous localization and mapping. In *Conference on Robot Learning*, pages 1100–1109. PMLR, 2021.

500. T. Rahman, A. Akinbi, M. Chowdhury, T. Rashid, A. Şengür, A. Khandakar, K. Islam, and A. Ismael. Cov-ecgnet: Covid-19 detection using ecg trace images with deep convolutional neural network. *Health Information Science and Systems*, 10:1, 2022.

501. Bharathkumar Ramachandra and Michael Jones. Street scene: A new dataset and evaluation protocol for video anomaly detection. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision*, pages 2569–2578, 2020.

502. Rabie A. Ramadan and Athanasios V. Vasilakos. Brain computer interface: control signals review. *Neurocomputing*, 223(Supplement C):26–44, February 2017.

503. Soundarya Ramesh, Thomas Pathier, and Jun Han. Sounduav: Towards delivery drone authentication via acoustic noise fingerprinting. In *Proceedings of the 5th Workshop on Micro Aerial Vehicle Networks, Systems, and Applications*, pages 27–32, 2019.

504. Carlos Ramos-Romero, Nathan Green, Seth Roberts, Charlotte Clark, and Antonio J. Torija. Requirements for drone operations to minimise community noise impact. *International Journal of Environmental Research and Public Health*, 19(15):9299, 2022.

505. Caleb Rascon, Oscar Ruiz-Espitia, and Jose Martinez-Carranza. On the use of the aira-uas corpus to evaluate audio processing algorithms in unmanned aerial systems. *Sensors*, 19(18):3902, 2019.

506. Mamunur Rashid, Norizam Sulaiman, Mahfuzah Mustafa, Sabira Khatun, and Bifta Sama Bari. The classification of eeg signal using different machine learning techniques for bci application. In *Robot Intelligence Technology and Applications: 6th International Conference, RiTA 2018, Kuala Lumpur, Malaysia, December 16–18, 2018, Revised Selected Papers 6*, pages 207–221. Springer, 2019.

507. Nasir Rashid, Javaid Iqbal, Amna Javed, Mohsin I Tiwana, and Umar Shahbaz Khan. Design of embedded system for multivariate classification of finger and thumb movements using eeg signals for control of upper limb prosthesis. *BioMed Research International*, 2018, 2018.

508. T. Rausch, T. Zichner, A. Schlattl, A. Stütz, V. Benes, and J. Korbel. Delly: Structural variant discovery by integrated paired-end and split-read analysis. *Bioinformatics*, 28, 2012.

509. Mahdyar Ravanbakhsh, Enver Sangineto, Moin Nabi, and Nicu Sebe. Training adversarial discriminators for cross-channel abnormal event detection in crowds. In *2019 IEEE Winter Conference on Applications of Computer Vision (WACV)*, pages 1896–1904. IEEE, 2019.

510. Joseph Redmon, Santosh Divvala, Ross Girshick, and Ali Farhadi. You only look once: Unified, real-time object detection. In *Proceedings of the IEEE conference on computer vision and pattern recognition*, pages 779–788, 2016.

511. Christian Reiser, Songyou Peng, Yiyi Liao, and Andreas Geiger. KiloNeRF: Speeding up Neural Radiance Fields with Thousands of Tiny MLPs, August 2021. arXiv:2103.13744 [cs].

512. B. Rekadwad and J. M. Gonzalez. *New generation DNA sequencing (NGS): Mining for genes and the potential of extremophiles*, pages 255–268. Springer International Publishing, 2017.

513. M. Rivera. Reeuso de redes preentrenadas (cimat). [Online]. Available: http://mrivera/cursos/aprendizaje˙profundo/preentrenadas/preentrenadas.html#transferencia-de-conocimiento-de-redes-preentrenadas-a-nuevos-problemas.

514. Damian Roca, Rodolfo Milito, Mario Nemirovsky, and Mateo Valero. Advances in the hierarchical emergent behaviors (heb) approach to autonomous vehicles. *IEEE Intelligent Transportation Systems Magazine*, 12(4):57–65, 2020.

515. Damian Roca, Daniel Nemirovsky, Mario Nemirovsky, Rodolfo Milito, and Mateo Valero. Emergent behaviors in the internet of things: The ultimate ultra-large-scale system. *IEEE Micro*, 36(6):36–44, 2016.

516. D. Rodman, S. Lowenstein, and T. Rodman. The electrocardiogram in chronic obstructive pulmonary disease. *J Emerg Med*, 8:607–615, 1990.

517. Jean-Paul Rodrigue. *The geography of transport systems*. Routledge, 2020.

518. L. Oyuki Rojas-Perez and J. Martinez-Carranza. Leveraging a neural pilot via automatic gain tuning using gate detection for autonomous drone racing. In *13th International Micro Air Vehicle Conference at Delft, The Netherlands*, pages 110–118.

519. L Oyuki Rojas-Perez and J Martinez-Carranza. A temporal cnn-based approach for autonomous drone racing. In *2019 Workshop on Research, Education and Development of Unmanned Aerial Systems (RED UAS)*, pages 70–77. IEEE, 2019.

520. L Oyuki Rojas-Perez and Jose Martinez-Carranza. Metric monocular slam and colour segmentation for multiple obstacle avoidance in autonomous flight. In *2017 Workshop on Research, Education and Development of Unmanned Aerial Systems (RED-UAS)*, pages 234–239. IEEE, 2017.

521. L Oyuki Rojas-Perez and José Martínez-Carranza. On-board processing for autonomous drone racing: an overview. *Integration*, 80:46–59, 2021.

522. L Oyuki Rojas-Perez and Jose Martinez-Carranza. Deeppilot4pose: a fast pose localisation for mav indoor flight using the oak-d camera. *Journal of Real-Time Image Processing*, 20(1):8, 2023.

523. Leticia Oyuki Rojas-Perez and Jose Martinez-Carranza. Deeppilot: A cnn for autonomous drone racing. *Sensors*, 20(16):4524, 2020.

524. Leticia Oyuki Rojas-Perez and Jose Martinez-Carranza. Towards autonomous drone racing without gpu using an oak-d smart camera. *Sensors*, 21(22):7436, 2021.

525. Leticia Oyuki Rojas-Perez and Jose Martinez-Carranza. Where are the gates: Discovering effective waypoints for autonomous drone racing. In *Advances in Artificial Intelligence–IBERAMIA 2022: 17th Ibero-American Conference on AI, Cartagena de Indias, Colombia, November 23–25, 2022, Proceedings*, pages 353–365. Springer, 2023.

526. Angel Romero, Robert Penicka, and Davide Scaramuzza. Time-optimal online replanning for agile quadrotor flight. *IEEE Robotics and Automation Letters*, 7(3):7730–7737, 2022.

527. Martin Rosalie, Grégoire Danoy, Serge Chaumette, and Pascal Bouvry. Chaos-enhanced mobility models for multilevel swarms of UAVs. *Swarm and Evolutionary Computation*, 41:36–48, August 2018.

528. Martin Rosalie, Jan E. Dentler, Grégoire Danoy, Pascal Bouvry, Somasundar Kannan, Miguel A. Olivares-Mendez, and Holger Voos. Area exploration with a swarm of UAVs combining deterministic chaotic ant colony mobility with position MPC. In *2017 International Conference on Unmanned Aircraft Systems (ICUAS)*, pages 1392–1397, Miami, FL, June 2017.

529. Antoni Rosinol, John J. Leonard, and Luca Carlone. NeRF-SLAM: Real-Time Dense Monocular SLAM with Neural Radiance Fields, October 2022. arXiv:2210.13641 [cs].

530. Somak Roy, Christopher Coldren, Arivarasan Karunamurthy, Nefize S. Kip, Eric W. Klee, Stephen E. Lincoln, Annette Leon, Mrudula Pullambhatla, Robyn L. Temple-Smolkin, Karl V. Voelkerding, Chen Wang, and Alexis B. Carter. Standards and guidelines for validating next-generation sequencing bioinformatics pipelines: A joint recommendation of the association for molecular pathology and the college of american pathologists. *Journal of Molecular Diagnostics*, 20:4–27, 2018.

531. Markovskii. V. S., Fominykh. A. A., and Matveev. N. V. Simulation of air-to-ground based on cellular network. In *2021 Wave Electronics and its Application in Information and Telecommunication Systems (WECONF)*, pages 1–4. IEEE, 2021.

532. Sara Sabour, Suhani Vora, Daniel Duckworth, Ivan Krasin, David J. Fleet, and Andrea Tagliasacchi. RobustNeRF: Ignoring Distractors with Robust Losses, February 2023. arXiv:2302.00833 [cs].

533. Ali Safa, Tim Verbelen, Ilja Ocket, André Bourdoux, Hichem Sahli, Francky Catthoor, and Georges Gielen. Learning to slam on the fly in unknown environments: A continual learning approach for drones in visually ambiguous scenes. *arXiv preprint arXiv:2208.12997*, 2022.

534. A.H. Safari, N. Sedaghat, H. Zabeti, A. Forna, L. Chindelevitch, and M. Libbrecht. Predicting drug resistance in m. tuberculosis using a long-term recurrent convolutional network. *Proceedings of the 12th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics, BCB 2021*, 1, 2021.

535. Chiranjib Saha, Mehrnaz Afshang, and Harpreet S. Dhillon. Integrated mmwave access and backhaul in 5G: Bandwidth partitioning and downlink analysis. In *2018 IEEE International Conference on Communications (ICC)*, pages 1–6, 2018.

536. Simanto Saha, Khondaker A. Mamun, Khawza Ahmed, Raqibul Mostafa, Ganesh R. Naik, Sam Darvishi, Ahsan H. Khandoker, and Mathias Baumert. Progress in brain computer interface: Challenges and opportunities. *Frontiers in Systems Neuroscience*, 15, 2021.

537. S. Saini and R. Gupta. Artificial intelligence methods for analysis of electrocardiogram signals for cardiac abnormalities: state-of-the-art and future challenges. *Artificial Intelligence Review*, 55:1519–1565, 2022.

538. Alzayat Saleh, Marcus Sheaves, and Mostafa Rahimi Azghadi. Computer vision and deep learning for fish classification in underwater habitats: A survey. *Fish and Fisheries*, 23:977–999, 7 2022.

539. M. Salim-Maza. *Generación y Distribución de Señal de Reloj para Sistemas en Chip utilizando Anillos Interconectados Acoplados*. PhD thesis, Ph.D. dissertation, Instituto Nacional de Astrofísica, Óptica, y Electrónica, 2005.

540. F. Sana, E. Isselbacher, J. Singh, E. Heist, B. Pathik, and A. Armoundas. Wearable devices for ambulatory cardiac monitoring: Jacc state-of-the-art review. *Journal of the American College of Cardiology*, 75:1582–1592, 2020.

541. S. E. Sandoval-Azuara, R. Muñiz Salazar, R. Perea-Jacobo, S. Robbe-Austerman, A. Perera-Ortiz, G. Lopez-Valencia, D.M. Bravo, A. Sanchez-Flores, D. Miranda-Guzman, C.A. Flores-Lopez, R. Zenteno-Cuevas, R. Laniado-Laborin, F.L. de la Cruz, and T.P. Stuber. Whole genome sequencing of mycobacterium bovis to obtain molecular fingerprints in human and cattle isolates from baja california, mexico. *International Journal of Infectious Diseases*, 63:48–56, 2017.

542. A. Santos-Pereira, C. Magalhães, P. Araujo, and N. Osorio. Evolutionary genetics of mycobacterium tuberculosis and hiv-1: the tortoise and the hare. *Microorganisms*, 9:1–15, 2021.

543. Paul-Edouard Sarlin, Ajaykumar Unagar, Mans Larsson, Hugo Germain, Carl Toft, Viktor Larsson, Marc Pollefeys, Vincent Lepetit, Lars Hammarstrand, Fredrik Kahl, et al. Back to the feature: Learning robust camera localization from pixels to pose. In *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition*, pages 3247–3257, 2021.

544. Anish A. Sarma, Jing Shuang Lisa Li, Josefin Stenberg, Gwyneth Card, Elizabeth S. Heckscher, Narayanan Kasthuri, Terrence Sejnowski, and John C. Doyle. Internal feedback in biological control: Architectures and examples. In *2022 American Control Conference (ACC)*, pages 456–461, 2022.

545. A. Sarmiento-Reyes, J. U. Franco, Y. Rodríguez-Velásquez, and J. P. Loyo. Development of an operator-based fully analytical charge-controlled memristor model. In *IEEE 15th Int. Conf. on Electrical Engineering, Computing Science and Automatic Control (CCE)*, pages 1–4, 2018.

546. G. Satta, M. Lipman, G. Smith, C. Arnold, O. Kon, and T. McHugh. Mycobacterium tuberculosis and whole-genome sequencing: how close are we to unleashing its full potential? *Clinical Microbiology and Infection*, 24:604–609, 2018.

547. Torsten Sattler, Qunjie Zhou, Marc Pollefeys, and Laura Leal-Taixe. Understanding the limitations of cnn-based absolute camera pose regression. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 3302–3312, 2019.

548. Marzieh Savadkoohi, Timothy Oladunni, and Lara Thompson. A machine learning approach to epileptic seizure prediction using electroencephalogram (eeg) signal. *Biocybernetics and Biomedical Engineering*, 40(3):1328–1341, 2020.

549. Davide Scaramuzza and Friedrich Fraundorfer. Visual odometry [tutorial]. *IEEE robotics & automation magazine*, 18(4):80–92, 2011.

550. Beat Schäffer, Reto Pieren, Kurt Heutschi, Jean Marc Wunderli, and Stefan Becker. Drone noise emission characteristics and noise effects on humans?a systematic review. *International journal of environmental research and public health*, 18(11):5940, 2021.

551. Gerwin Schalk, Dennis J McFarland, Thilo Hinterberger, Niels Birbaumer, and Jonathan R Wolpaw. Bci2000: a general-purpose brain-computer interface (bci) system. *IEEE Transactions on biomedical engineering*, 51(6):1034–1043, 2004.

552. Fabrizio Schiano, Dominik Natter, Davide Zambrano, and Dario Floreano. Autonomous detection and deterrence of pigeons on buildings by drones. *IEEE Access*, 10:1745–1755, 2021.

553. Daniel Schleich, Marius Beul, Jan Quenzel, and Sven Behnke. Autonomous flight in unknown gnss-denied environments for disaster examination. In *2021 International Conference on Unmanned Aircraft Systems (ICUAS)*, pages 950–957. IEEE, 2021.

554. C. Schötz. Comparison of methods for learning differential equations from data. In *EGU General Assembly 2023, Vienna, Austria, 24-28 Apr 2023, EGU23-7368*, 2023.

555. Soroush Seifi and Tinne Tuytelaars. How to improve cnn-based 6-dof camera pose estimation. In *Proceedings of the IEEE International Conference on Computer Vision Workshops*, pages 0–0, 2019.

556. Tabassum. H. Sekander. S and Hossai. E. Multi-tier drone architecture for 5G/B5G cellular networks: Challenges, trends, and prospects. *IEEE Communications Magazine*, 56(3):96–103, 2018.

557. Dimitrios Serpanos. The cyber-physical systems revolution. *Computer*, 51(3):70–73, 2018.

558. Advaith Venkatramanan Sethuraman, Manikandasriram Srinivasan Ramanagopal, and Katherine A. Skinner. WaterNeRF: Neural Radiance Fields for Underwater Scenes, September 2022. arXiv:2209.13091 [cs, eess].

559. De Rosal Igantius Moses Setiadi. PSNR vs SSIM: imperceptibility quality assessment for image steganography. *Multimed Tools Appl*, 80(6):8423–8444, March 2021.

560. Syed Zakir Hussain Shah, Hafiz Tayyab Rauf, Muhammad IkramUllah, Malik Shahzaib Khalid, Muhammad Farooq, Mahroze Fatima, and Syed Ahmad Chan Bukhari. Fish-pak: Fish species dataset from pakistan for visual features based classification. *Data in Brief*, 27:104565, 2019.

561. Naresh R. Shanbhag, Subhasish Mitra, Gustavode de Veciana, Michael Orshansky, Radu Marculescu, Jaijeet Roychowdhury, Douglas Jones, and Jan M. Rabaey. The search for alternative computational paradigms. *IEEE Design & Test of Computers*, 25(4):334–343, 2008.

562. Amit Sheth. Internet of things to smart iot through semantic, cognitive, and perceptual computing. *IEEE Intelligent Systems*, 31(2):108–112, 2016.

563. Akshay Shetty and Grace Xingxin Gao. Uav pose estimation using cross-view geolocalization with satellite imagery. In *2019 International Conference on Robotics and Automation (ICRA)*, pages 1827–1833. IEEE, 2019.

564. Y. Shifman, A. Miller, Y. Weizman, A. Fish, and J. Shor. An SRAM PUF with 2 independent bits/cell in 65nm. In *Int. Symp. on Circuits and Systems (ISCAS)*, pages 1–5. IEEE, 2019.

565. Dongseok Shim, Seungjae Lee, and H. Jin Kim. SNeRL: Semantic-aware Neural Radiance Fields for Reinforcement Learning, January 2023. arXiv:2301.11520 [cs].

566. Dongyoon Shin, Hyeji Kim, Jihyuk Gong, Uijeong Jeong, Yeeun Jo, and Eric Matson. Stealth uav through coandă effect. In *2020 Fourth IEEE International Conference on Robotic Computing (IRC)*, pages 202–209. IEEE, 2020.

567. S. Shokralla, J. Spall, J. Gibson, and M. Hajibabaei. Next-generation sequencing technologies for environmental dna research. *Molecular Ecology*, 21:1794–1805, 2012.

568. Mark R Shortis, Mehdi Ravanbakhsh, Faisal Shafait, and Ajmal Mian. Progress in the automated identification, measurement and counting of fish in underwater image sequences, 2016.

569. Bruno Siciliano, Lorenzo Sciavicco, Luigi Villani, and Giuseppe Oriolo. *Robotics: Modelling, Planning and Control*. Springer London, 2008. DOI: 10.1007/978-1-84628-642-1.

570. Harun Siljak, John Kennedy, Stephen Byrne, and Karina Einicke. Noise mitigation of uav operations through a complex networks approach. In *INTER-NOISE and NOISE-CON Congress and Conference Proceedings*, volume 265, pages 2208–2214. Institute of Noise Control Engineering, 2023.

571. Karen Simonyan and Andrew Zisserman. Two-stream convolutional networks for action recognition in videos. *Advances in neural information processing systems*, 27, 2014.

572. Karen Simonyan and Andrew Zisserman. Very deep convolutional networks for large-scale image recognition. *arXiv preprint arXiv:1409.1556*, 2014.

573. Uriel Singer, Shelly Sheynin, Adam Polyak, Oron Ashual, Iurii Makarov, Filippos Kokkinos, Naman Goyal, Andrea Vedaldi, Devi Parikh, Justin Johnson, and Yaniv Taigman. Text-To-4D Dynamic Scene Generation, January 2023. arXiv:2301.11280 [cs].

574. Gurkirt Singh, Stephen Akrigg, Manuele Di Maio, Valentina Fontana, Reza Javanmard Alitappeh, Salman Khan, Suman Saha, Kossar Jeddisaravi, Farzad Yousefi, Jacob Culley, et al. Road: The road event awareness dataset for autonomous driving. *IEEE transactions on pattern analysis and machine intelligence*, 45(1):1036–1054, 2022.

575. J. Singh and B. Raj. "Temperature dependent analytical modeling and simulations of nanoscale memristor". *Engineering science and technology, an Int. journal*, 21(5):862–868, 2018.

576. Jason Sleight, Preeti J. Pillai, and S. Mohan. Classification of Executed and Imagined Motor Movement EEG Signals, 2009.

577. J. Smith and A. Woodcock. New developments in the objective assessment of cough. *Lung*, 186:48–54, 2008.

578. James E. Smith. Research agenda: Spacetime computation and the neocortex. *IEEE Micro*, 37(1):8–14, 2017.

579. Alex J Smola and Bernhard Schölkopf. A tutorial on support vector regression. *Statistics and computing*, 14:199–222, 2004.

580. C. Spaccarotella, S. Migliarino, A. Mongiardo, J. Sabatino, G. Santarpia, S. De Rosa, A. Curcio, and C. Indolfi. Measurement of the qt interval using the apple watch. *Scientific Report*, 11:10817, 2021.

581. Sara Spedicato and Giuseppe Notarstefano. Minimum-time trajectory generation for quadrotors in constrained environments. *IEEE Transactions on Control Systems Technology*, 26(4):1335–1344, 2017.

582. Igor Stancin, Mario Cifrek, and Alan Jovic. A review of eeg signal features and their application in driver drowsiness detection systems. *Sensors*, 21(11), 2021.

583. Josefin Stenberg, Jing Shuang Lisa Li, Anish A. Sarma, and John C. Doyle. Internal feedback in biological control: Diversity, delays, and standard theory. In *2022 American Control Conference (ACC)*, pages 462–467, 2022.

584. Daniel H. Stolfi, Matthias R. Brust, Grégoire Danoy, and Pascal Bouvry. A Cooperative Coevolutionary Approach to Maximise Surveillance Coverage of UAV Swarms. In *2020 IEEE 17th Annual Consumer Communications Networking Conference (CCNC)*, pages 528–535, Las Vegas, NV, USA, January 2020. ISSN: 2331-9860.

585. R. Strahan, T. Uppal, and S.C. Verma. Next-generation sequencing in the understanding of kaposi?s sarcoma-associated herpesvirus (kshv) biology. *Viruses*, 8:1–27, 2016.

586. Jonathan Stroud, David Ross, Chen Sun, Jia Deng, and Rahul Sukthankar. D3d: Distilled 3d networks for video action recognition. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision*, pages 625–634, 2020.

587. D. B. Strukov, G. S. Snider, D. R. Stewart, and R. S. Williams. The missing memristor found. *Nature*, 453(7191):80–83, 2008.

588. Wang Su, Abhijeet Ravankar, Ankit A Ravankar, Yukinori Kobayashi, and Takanori Emaru. Uav pose estimation using ir and rgb cameras. In *2017 IEEE/SICE International Symposium on System Integration (SII)*, pages 151–156. IEEE, 2017.

589. Edgar Sucar, Shikun Liu, Joseph Ortiz, and Andrew J Davison. imap: Implicit mapping and positioning in real-time. In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, pages 6229–6238, 2021.

590. G E. Suh and S. Devadas. Physical unclonable functions for device authentication and secret key generation. In *44th ACM/IEEE Design Automation Conference*, pages 9–14, 2007.

591. C. Sun, M. Song, S. Hong, and H. Li. A review of designs and applications of echo state networks. *arXiv:2012.02974v1*, 2020.

592. Cheng Sun, Min Sun, and Hwann-Tzong Chen. Direct Voxel Grid Optimization: Superfast Convergence for Radiance Fields Reconstruction, June 2022. arXiv:2111.11215 [cs].

593. Cheng Sun, Min Sun, and Hwann-Tzong Chen. Improved Direct Voxel Grid Optimization for Radiance Fields Reconstruction, July 2022. arXiv:2206.05085 [cs].

594. Chunyi Sun, Yanbin Liu, Junlin Han, and Stephen Gould. NeRFEditor: Differentiable Style Decomposition for Full 3D Scene Editing, December 2022. arXiv:2212.03848 [cs, eess].

595. Jiankai Sun, Yan Xu, Mingyu Ding, Hongwei Yi, Jingdong Wang, Liangjun Zhang, and Mac Schwager. NeRF-Loc: Transformer-Based Object Localization Within Neural Radiance Fields, September 2022.

596. Jianwei Sun, Koichi Yonezawa, Eiji Shima, and Hao Liu. Integrated evaluation of the aeroacoustics and psychoacoustics of a single propeller. *International Journal of Environmental Research and Public Health*, 20(3):1955, 2023.

597. Shaohui Sun, Ramesh Sarukkai, Jack Kwok, and Vinay Shet. Accurate deep direct geo-localization from ground imagery and phone-grade gps. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops*, pages 1016–1023, 2018.

598. Zhe Sun, Xuejian Zhao, Zhixin Sun, Feng Xiang, and Chunjing Mao. Optimal Sliding Mode Controller Design Based on Dynamic Differential Evolutionary Algorithm for Under-Actuated Crane Systems. *IEEE Access*, 6:67469–67476, 2018. Conference Name: IEEE Access.

599. Y. Suo, W. Qiao, C. Jiang, B. Zhang, and F. Liu. A Residual-Fitting Modeling Method for Digital Predistortion of Broadband Power Amplifiers. *IEEE Microwave and Wireless Components Letters*, 32(9):1115–1118, 2022.

600. Shun Taguchi and Noriaki Hirose. Unsupervised simultaneous learning for camera re-localization and depth estimation from video. In *2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 6840–6847. IEEE, 2022.

601. Morgan B Talbot, Rushikesh Zawar, Rohil Badkundri, Mengmi Zhang, and Gabriel Kreiman. Lifelong compositional feature replays beat image replays in stream learning. *arXiv preprint arXiv:2104.02206*, 2021.

602. G. Tanaka, T. Yamane, J.B. Héroux, R. Nakane, N. Kanazawa, S. Takeda, H. Numata, D. Nakano, and A. Hirose. Recent advances in physical reservoir computing: A review. *Neural Networks*, 115:100–123, 2019.

603. Matthew Tancik, Vincent Casser, Xinchen Yan, Sabeek Pradhan, Ben Mildenhall, Pratul P. Srinivasan, Jonathan T. Barron, and Henrik Kretzschmar. Block-NeRF: Scalable Large Scene Neural View Synthesis, February 2022. arXiv:2202.05263 [cs].

604. Matthew Tancik, Ethan Weber, Evonne Ng, Ruilong Li, Brent Yi, Justin Kerr, Terrance Wang, Alexander Kristoffersen, Jake Austin, Kamyar Salahi, Abhik Ahuja, David McAllister, and Angjoo Kanazawa. Nerfstudio: A Modular Framework for Neural Radiance Field Development, February 2023. arXiv:2302.04264 [cs].

605. Shitao Tang, Chengzhou Tang, Rui Huang, Siyu Zhu, and Ping Tan. Learning camera localization via dense scene matching. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 1831–1841, 2021.

606. Zhenggang Tang, Balakumar Sundaralingam, Jonathan Tremblay, Bowen Wen, Ye Yuan, Stephen Tyree, Charles Loop, Alexander Schwing, and Stan Birchfield. RGB-Only Reconstruction of Tabletop Scenes for Collision-Free Manipulator Control, October 2022.

607. Chen. S. Tang. Q, Wei. Z and Cheng. Z. Modeling and simulation of A2G channel based on UAV array. In *2020 IEEE 6th International Conference on Computer and Communications (ICCC)*, pages 500–506. IEEE, 2020.

608. Ryutaro Tanno, Melanie F Pradier, Aditya Nori, and Yingzhen Li. Repairing neural networks by leaving the right past behind. *Advances in Neural Information Processing Systems*, 35:13132–13145, 2022.

609. Yi Tao, Weiwei Xu, Guangming Wang, Ziwen Yuan, Maode Wang, Michael Houston, Yingchun Zhang, Badong Chen, Xiangguo Yan, and Gang Wang. Decoding multi-class eeg signals of hand movement using multivariate empirical mode decomposition and convolutional neural network. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 30:2754–2763, 2022.

610. Zachary Teed and Jia Deng. Droid-slam: Deep visual slam for monocular, stereo, and rgb-d cameras. *Advances in neural information processing systems*, 34:16558–16569, 2021.

611. Michal Teplan. Fundamental of EEG measurement. *Measurement Science Review*, 2, 01 2002.

612. M. Thilagaraj, S. Ramkumar, N. Arunkumar, A. Durgadevi, K. Karthikeyan, S. Hariharasitaraman, M. Pallikonda Rajasekaran, and Petchinathan Govindan. Classification of electroencephalogram signal for developing brain-computer interface using bioinspired machine learning approach. *Computational Intelligence and Neuroscience*, 2022, 2022.

613. Esteban Tlelo-Cuautle, Astrid Maritza González-Zapata, Jonathan Daniel Dáz-Muñoz, Luis Gerardo de la Fraga, and Israel Cruz-Vega. Optimization of fractional-order chaotic cellular neural networks by metaheuristics. *The European Physical Journal Special Topics*, 231(10):2037–2043, August 2022.

614. Shengbang Tong, Xili Dai, Ziyang Wu, Mingyang Li, Brent Yi, and Yi Ma. Incremental learning of structured memory via closed-loop transcription. *arXiv preprint arXiv:2202.05411*, 2022.

615. Antonio J Torija and Rory K Nicholls. Investigation of metrics for assessing human response to drone noise. *International Journal of Environmental Research and Public Health*, 19(6):3152, 2022.

616. A. J. Torija Martinez et al. Drone noise, a new public health challenge? In *Quiet Drones International e-Symposium on UAV/UAS Noise 2020*, pages 448–454. International Institute of Noise Control Engineering, 2020.

617. A. J. Torija Martinez, Zhengguang Li, et al. Metrics for assessing the perception of drone noise. In *Proceedings of Forum Acusticum 2020*, pages 3163–3168. European Acoustics Association (EAA)/HAL, 2020.

618. R. Torrance and D. James. The state-of-the-art in IC reverse engineering. In *Int. Workshop on Cryptographic Hardware and Embedded Systems*, pages 363–381. Springer, 2009.

619. Cesar Torres-Huitzil and Bernard Girau. Fault and error tolerance in neural networks: A review. *IEEE Access*, 5:17322–17341, 2017.

620. B. Tracey, G. Comina, S. Larson, M. Bravard, J. López, and R. Gilman. Cough detection algorithm for monitoring patient recovery from pulmonary tuberculosis. In *2011 Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, pages 6017–6020, 2011.

621. Finnish Transport and Communications Agency. Definitions for communications services and networks used in traficom's statistics and requests for information.

622. Thanh-Dat Truong, Pierce Helton, Ahmed Moustafa, Jackson David Cothren, and Khoa Luu. Conda: Continual unsupervised domain adaptation learning in visual perception for self-driving cars. *arXiv preprint arXiv:2212.00621*, 2022.

623. Wei-Cheng Tseng, Hung-Ju Liao, Lin Yen-Chen, and Min Sun. CLA-NeRF: Category-Level Articulated Neural Radiance Field, March 2022. arXiv:2202.00181 [cs].

624. Haithem Turki, Deva Ramanan, and Mahadev Satyanarayanan. Mega-nerf: Scalable construction of large-scale nerfs for virtual fly-throughs. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 12922–12931, 2022.

625. Aruna Tyagi, Sunil Semwal, and Gautam Shah. A review of eeg sensors used for data acquisition. *Journal of Computer Applications (IJCA)*, pages 13–17, 2012.

626. Monika Ullrich, Haider Ali, Maximilian Durner, Zoltán-Csaba Márton, and Rudolph Triebel. Selecting cnn features for online learning of 3d objects. In *2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 5086–5091. IEEE, 2017.

627. Balemir Uragun and Ibrahim N. Tansel. The noise reduction techniques for unmanned air vehicles. In *2014 International Conference on Unmanned Aircraft Systems (ICUAS)*, pages 800–807. IEEE, 2014.

628. Dragan B. Đurđević, Nikola Pavlov, and Mladen Božić. The role of warehouse in e-business. *E-Business Technologies*, page 7, 2021.

629. R. Urtasun, P. Lenz, and A. Geiger. Are we ready for autonomous driving? the kitti vision benchmark suite. In *2012 IEEE Conference on Computer Vision and Pattern Recognition*, pages 3354–3361. IEEE Computer Society, 2012.

630. Abhinav Valada, Noha Radwan, and Wolfram Burgard. Deep auxiliary learning for visual localization and odometry. In *2018 IEEE international conference on robotics and automation (ICRA)*, pages 6939–6946. IEEE, 2018.

631. Leslie G. Valiant. A neuroidal architecture for cognitive computation. *Journal of ACM*, 47(5):854–882, sep 2000.

632. Andrea Vallone, Frederik Warburg, Hans Hansen, Søren Hauberg, and Javier Civera. Danish airs and grounds: A dataset for aerial-to-street-level place recognition and localization. *arXiv preprint arXiv:2202.01821*, 2022.

633. M. Van Cleeff, L. Kivihya-Ndugga, H. Meme, J. Odhiambo, and P. Klatser. The role and performance of chest x-ray for the diagnosis of tuberculosis: A cost-effective analysis in nairobi, kenya. *BMC Infectious Diseases*, 5:1–9, 2005.

634. G. Van der Auwera, M. Carneiro, C. Hartl, R. Poplin, G. Del Angel, A. Levy-Moonshine, T. Jordan, K. Shakir, D. Roazen, J. Thibault, E. Banks, K. Garimella, D. Altshuler, S. Gabriel, and M. DePristo. From fastq data to high-confidence variant calls: The genome analysis toolkit best practices pipeline. *Current Protocols in Bioinformatics*, 43:11.10.1–11.10.33, 2013.

635. Jan van Erp, Fabien Lotte, and Michael Tangermann. Brain-computer interfaces: Beyond medical applications. *Computer*, 45(4):26–34, 2012.

636. B. Vandenberk, E. Vandael, T. Robyns, J. Vandenberghe, C. Garweg, V. Foulon, J. Ector, and R. Willems. Which qt correction formulae to use for qt monitoring? *Journal of the American Heart Association*, 5:e003264, 2016.

637. Cecilia Vargas-Olmos. Procesamiento de imágenes con métodos de ondeleta. M.s. thesis, Instituto de Investigación en Comunicación Óptica, UASLP, San Luis Potosí, México, jun 2010.

638. Cecilia Vargas-Olmos. *Procesamiento de señales y solución de problemas con la transformada wavelet*. Ph.d. dissertation, Instituto de Investigación en Comunicación Óptica, UASLP, San Luis Potosí, México, 2017.

639. Natalia S Vassilieva. Content-based image retrieval methods. *Programming and Computer Software*, 35(3):158–180, 2009.

640. Francisco Velasco-álvarez, álvaro Fernández-Rodríguez, and Ricardo Ron-Angevin. Brain-computer interface (bci)-generated speech to control domotic devices. *Neurocomputing*, 509:121–136, 2022.

641. S. Vhaduri, T. Kessel, B. Ko, D. Wood, S. Wang, and T. Brunschwiler. Nocturnal cough and snore detection in noisy environments using smartphone-microphones. In *2019 IEEE International Conference on Healthcare Informatics (ICHI)*, pages 1–7, 2019.

642. R. Vijayanandh, M. Ramesh, G. Raj Kumar, U. K. Thianesh, K. Venkatesan, and M Senthil Kumar. Research of noise in the unmanned aerial vehicle?s propeller using cfd. *International Journal of Engineering and Advanced Technology, ISSN*, pages 2249–8958, 2019.

643. Andrés Villa, Juan León Alcázar, Motasem Alfarra, Kumail Alhamoud, Julio Hurtado, Fabian Caba Heilbron, Alvaro Soto, and Bernard Ghanem. Pivot: Prompting for video continual learning. *arXiv preprint arXiv:2212.04842*, 2022.

644. Niclas Vödisch, Daniele Cattaneo, Wolfram Burgard, and Abhinav Valada. Continual slam: Beyond lifelong simultaneous localization and mapping through continual learning. In *Robotics Research*, pages 19–35. Springer, 2023.

645. Niclas Vödisch, Daniele Cattaneo, Wolfram Burgard, and Abhinav Valada. Covio: Online continual learning for visual-inertial odometry. *arXiv preprint arXiv:2303.10149*, 2023.

646. Niclas Vödisch, Kürsat Petek, Wolfram Burgard, and Abhinav Valada. Codeps: Online continual learning for depth estimation and panoptic segmentation. *arXiv preprint arXiv:2303.10147*, 2023.

647. Georgios Volanis, Angelos Antonopoulos, Alkis A. Hatzopoulos, and Yiorgos Makris. Toward silicon-based cognitive neuromorphic ics—a survey. *IEEE Design & Test*, 33(3):91–102, 2016.

648. Trieu-Duc Vu, Yuki Iwasaki, Kenshiro Oshima, Ming-Tzu Chiu, Masato Nikaido, and Norihiro Okada. Data of rna-seq transcriptomes in the brain associated with aggression in males of the fish betta splendens. *Data in Brief*, 38:107448, 2021.

649. C. A. Vázquez-Chacón, F. J. Rodríguez-Gaxiola, C. F. López-Carrera, M. Cruz-Rivera, A. Martínez-Guarneros, R. Parra-Unda, E. Arámbula-Meraz, S. Fonseca-Coronado, G. Vaughan, and P. A. López-Durán. Identification of drug resistance mutations among mycobacterium bovis lineages in the americas. *PLoS Neglected Tropical Diseases*, 15:1–12, 2021.

650. Kaido Värbu, Naveed Muhammad, and Yar Muhammad. Past, present, and future of eeg-based bci applications. *Sensors*, 22(9), 2022.

651. Florian Walch, Caner Hazirbas, Laura Leal-Taixe, Torsten Sattler, Sebastian Hilsenbeck, and Daniel Cremers. Image-based localization using lstms for structured feature correlation. In *Proceedings of the IEEE International Conference on Computer Vision*, pages 627–637, 2017.

652. James S Walker. *A primer on wavelets and their scientific applications*. Broken Sound Parkway NW: Chapman and hall/CRC, 2nd ed. edition, 2008.

653. T. Walker, C. Ip, R. Harrell, J. Evans, G. Kapatai, M. Dedicoat, D. Eyre, D. Wilson, P. Hawkey, D. Crook, J. Parkhill, D. Harris, A. Walker, R. Bowden, P. Monk, E. Smith, and T. Peto. Whole-genome sequencing to delineate mycobacterium tuberculosis outbreaks: A retrospective observational study. *The Lancet Infectious Diseases*, 13:137–146, 2013.

654. Matthew Wallingford, Aditya Kusupati, Alex Fang, Vivek Ramanujan, Aniruddha Kembhavi, Roozbeh Mottaghi, and Ali Farhadi. Neural radiance field codebooks. *arXiv preprint arXiv:2301.04101*, 2023.

655. Can Wang, Ruixiang Jiang, Menglei Chai, Mingming He, Dongdong Chen, and Jing Liao. NeRF-Art: Text-Driven Neural Radiance Fields Stylization, December 2022. arXiv:2212.08070 [cs].

656. J. Wang, S. Lu, S-H. Wang, and Y-D. Zhang. A review on extreme learning machine. *Multimedia Tools and Applications*, 2021.

657. J. Wang, I. Tsapakis, and C. Zhong. A space–time delay neural network model for travel time prediction. *Engineering Applications of Artificial Intelligence*, 52:145–160, 2016.

658. Jue Wang, Anoop Cherian, and Fatih Porikli. Ordered pooling of optical flow sequences for action recognition. In *2017 IEEE Winter Conference on Applications of Computer Vision (WACV)*, pages 168–176. IEEE, 2017.

659. Lina Wang, Weining Xue, Yang Li, Meilin Luo, Jie Huang, Weigang Cui, and Chao Huang. Automatic epileptic seizure detection in eeg signals using multi-domain feature extraction and nonlinear analysis. *Entropy*, 19(6):222, 2017.

660. Liyuan Wang, Xingxing Zhang, Hang Su, and Jun Zhu. A comprehensive survey of continual learning: Theory, method and application. *arXiv preprint arXiv:2302.00487*, 2023.

661. Sen Wang, Ronald Clark, Hongkai Wen, and Niki Trigoni. Deepvo: Towards end-to-end visual odometry with deep recurrent convolutional neural networks. In *2017 IEEE International Conference on Robotics and Automation (ICRA)*, pages 2043–2050. IEEE, 2017.

662. Shuzhe Wang, Zakaria Laskar, Iaroslav Melekhov, Xiaotian Li, and Juho Kannala. Continual learning for image-based camera localization. In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, pages 3252–3262, 2021.

663. Yuehao Wang, Yonghao Long, Siu Hin Fan, and Qi Dou. Neural Rendering for Stereo 3D Reconstruction of Deformable Tissues in Robotic Surgery, June 2022.

664. Zhongshu Wang, Lingzhi Li, Zhen Shen, Li Shen, and Liefeng Bo. 4K-NeRF: High Fidelity Neural Radiance Fields at Ultra High Resolutions, December 2022. arXiv:2212.04701 [cs].

665. Zirui Wang, Shangzhe Wu, Weidi Xie, Min Chen, and Victor Adrian Prisacariu. NeRF–: Neural Radiance Fields Without Known Camera Parameters, April 2022. arXiv:2102.07064 [cs].

666. J. Webster. *Medical Instrumentation: Application and Design*. John Wiley & Sons, 2009.

667. Yuliang Wei, Feng Xu, Shiyuan Bian, and Deyi Kong. Noise reduction of uav using biomimetic propellers with varied morphologies leading-edge serration. *Journal of Bionic Engineering*, 17:767–779, 2020.

668. Chung-Yi Weng, Brian Curless, Pratul P. Srinivasan, Jonathan T. Barron, and Ira Kemelmacher-Shlizerman. HumanNeRF: Free-viewpoint Rendering of Moving People from Monocular Video, June 2022. arXiv:2201.04127 [cs].

669. Travis Williams, Robert Li, et al. An ensemble of convolutional neural networks using wavelets for image classification. *Journal of Software Engineering and Applications*, 11(02):69, 2018.

670. Travis Williams, Robert Li, et al. Wavelet pooling for convolutional neural networks. *Proc. Int. Conf. on Learning Representations*, 2018.

671. Klaudia Witte, Katharina Baumgärtner, Corinna Röhrig, and Sabine Nöbel. Test of the deception hypothesis in atlantic mollies poecilia mexicana–does the audience copy a pretended mate choice of others? *Biology*, 7(3), 2018.

672. David Wong, Daisuke Deguchi, Ichiro Ide, and Hiroshi Murase. Single camera vehicle localization using feature scale tracklets. *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, 100(2):702–713, 2017.

673. Sanghyun Woo, Kwanyong Park, Seoung Wug Oh, In So Kweon, and Joon-Young Lee. Bridging images and videos: A simple learning framework for large vocabulary video object detection. In *Computer Vision–ECCV 2022: 17th European Conference, Tel Aviv, Israel, October 23–27, 2022, Proceedings, Part XXV*, pages 238–258. Springer, 2022.

674. Zirui Wu, Yuantao Chen, Runyi Yang, Zhenxin Zhu, Chao Hou, Yongliang Shi, Hao Zhao, and Guyue Zhou. Asyncnerf: Learning large-scale radiance fields from asynchronous rgb-d sequences with time-pose function. *arXiv preprint arXiv:2211.07459*, 2022.

675. Jean Marc Wunderli, Jonas Meister, Oliver Boolakee, and Kurt Heutschi. A method to measure and model acoustic emissions of multicopters. *International Journal of Environmental Research and Public Health*, 20(1):96, 2023.

676. Magdalena Wysocki, Mohammad Farid Azampour, Christine Eilers, Benjamin Busam, Mehrdad Salehi, and Nassir Navab. Ultra-NeRF: Neural Radiance Fields for Ultrasound Imaging, January 2023. arXiv:2301.10520 [cs, eess].

677. Yuanbo Xiangli, Linning Xu, Xingang Pan, Nanxuan Zhao, Anyi Rao, Christian Theobalt, Bo Dai, and Dahua Lin. Bungeenerf: Progressive neural radiance field for extreme multi-scale scene rendering. In *Computer Vision–ECCV 2022: 17th European Conference, Tel Aviv, Israel, October 23–27, 2022, Proceedings, Part XXXII*, pages 106–122. Springer, 2022.

678. Christopher Xie, Keunhong Park, Ricardo Martin-Brualla, and Matthew Brown. FiGNeRF: Figure-Ground Neural Radiance Fields for 3D Object Category Modelling, April 2021. arXiv:2104.08418 [cs].

679. Yiheng Xie, Towaki Takikawa, Shunsuke Saito, Or Litany, Shiqin Yan, Numair Khan, Federico Tombari, James Tompkin, Vincent Sitzmann, and Srinath Sridhar. Neural fields in visual computing and beyond. In *Computer Graphics Forum*, volume 41, pages 641–676. Wiley Online Library, 2022.

680. Sheng. M Zhao. N. Xie. Z, Liu. J and Li. J. Exploiting aerial computing for air-toground coverage enhancement. *IEEE Wireless Communications*, 28(5):50–58, 2021.

681. H. Xin, L. Zhijun, Y. Xiaofei, Z. Yulong, C. Wenhua, H. Biao, D. Xuekun, L. Xiang, H. Mohamed, W. Weidong, and F. M. Ghannouchi. Convolutional neural network for behavioral modeling and predistortion of wideband power amplifiers. *IEEE Transactions on Neural Networks and Learning Systems*, 33(8):3923–3937, 2022.

682. Dan Xu, Elisa Ricci, Yan Yan, Jingkuan Song, and Nicu Sebe. Learning deep representations of appearance and motion for anomalous event detection. *arXiv preprint arXiv:1510.01553*, 2015.

683. Fangzhou Xu, Fenqi Rong, Yunjing Miao, Yanan Sun, Gege Dong, Han Li, Jincheng Li, Yuandong Wang, and Jiancai Leng. Representation learning for motor imagery recognition with deep neural network. *Electronics*, 10(2), 2021.

684. G. Xu, H. Yu, C. Hua, and T. Liu. Chebyshev Polynomial-LSTM Model for 5G Millimeter-Wave Power Amplifier Linearization. *IEEE Microwave and Wireless Components Letters*, 32(6):611–614, 2022.

685. J. Xu, W. Jiang, L. Ma, M. Li, Z. Yu, and Z. Geng. Augmented Time-Delay Twin Support Vector Regression-Based Behavioral Modeling for Digital Predistortion of RF Power Amplifier. *IEEE Access*, 7:59832–59843, 2019.

686. Renjie Xu, Haifeng Lin, Kangjie Lu, Lin Cao, and Yunfei Liu. A forest fire detection system based on ensemble learning. *Forests*, 12(2), 2021.

687. Xiaoling Xu, Wensheng Li, and Qingling Duan. Transfer learning and se-resnet152 networks-based for small-scale unbalanced fish species identification. *Computers and Electronics in Agriculture*, 180, 1 2021.

688. Yifeng Xu, Yang Zhang, Huigang Wang, and Xing Liu. Underwater image classification using deep convolutional neural networks and data augmentation. *2017 IEEE International Conference on Signal Processing, Communications and Computing, ICSPCC 2017*, 2017-Janua:1–5, 2017.

689. LC Yan, B Yoshua, and H Geoffrey. Deep learning. *nature*, 521(7553):436–444, 2015.

690. Zike Yan, Yuxin Tian, Xuesong Shi, Ping Guo, Peng Wang, and Hongbin Zha. Continual neural mapping: Learning an implicit scene representation from sequential

observations. In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, pages 15782–15792, 2021.

691. Guanci Yang, Zhanjie Chen, Yang Li, and Zhidong Su. Rapid relocation method for mobile robot based on improved orb-slam2 algorithm. *Remote Sensing*, 11(2):149, 2019.

692. Ling Yang, Huihui Yu, Yuelan Cheng, Siyuan Mei, Yanqing Duan, Daoliang Li, and Yingyi Chen. A dual attention network based on efficientnet-b2 for short-term fish school feeding behavior analysis in aquaculture. *Computers and Electronics in Agriculture*, 187:106316, 8 2021.

693. Xingrui Yang, Yuhang Ming, Zhaopeng Cui, and Andrew Calway. Fd-slam: 3-d reconstruction using features and dense matching. In *2022 International Conference on Robotics and Automation (ICRA)*, pages 8040–8046. IEEE, 2022.

694. Y. Yang, T. M Walker, A. S. Walker, D. J. Wilson, T. E. A. Peto, D. W. Crook, F. Shamout, CRyPTIC Consortium, T. Zhu, and D. A. Clifton. Deepamr for predicting co-occurrent resistance of mycobacterium tuberculosis. *Bioinformatics*, 35:3240–3249, 2019.

695. Shuquan Ye, Dongdong Chen, Songfang Han, and Jing Liao. Robust point cloud segmentation with noisy annotations. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2022.

696. Zhenhui Ye, Ziyue Jiang, Yi Ren, Jinglin Liu, JinZheng He, and Zhou Zhao. Gene-Face: Generalized and High-Fidelity Audio-Driven 3D Talking Face Synthesis, January 2023. arXiv:2301.13430 [cs].

697. Chi Tsai Yeh, Tzuo Ming Chen, and Zhong Jie Liu. Flexible iot cloud application for ornamental fish recognition using yolov3 model. *Sensors and Materials*, 34:1229–1240, 2021.

698. Lin Yen-Chen, Pete Florence, Jonathan T. Barron, Tsung-Yi Lin, Alberto Rodriguez, and Phillip Isola. NeRF-Supervision: Learning Dense Object Descriptors from Neural Radiance Fields, March 2022.

699. Lin Yen-Chen, Pete Florence, Jonathan T. Barron, Alberto Rodriguez, Phillip Isola, and Tsung-Yi Lin. iNeRF: Inverting Neural Radiance Fields for Pose Estimation. In *2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 1323–1330, September 2021. ISSN: 2153-0866.

700. Lin Yen-Chen, Pete Florence, Andy Zeng, Jonathan T. Barron, Yilun Du, Wei-Chiu Ma, Anthony Simeonov, Alberto Rodriguez Garcia, and Phillip Isola. MIRA: Mental Imagery for Robotic Affordances, December 2022.

701. Peng Yin, Abulikemu Abuduweili, Shiqi Zhao, Changliu Liu, and Sebastian Scherer. Bioslam: A bio-inspired lifelong memory system for general place recognition. *arXiv preprint arXiv:2208.14543*, 2022.

702. Pengwei Yin, Jiawu Dai, Jingjing Wang, Di Xie, and Shiliang Pu. NeRF-Gaze: A Head-Eye Redirection Parametric Model for Gaze Estimation, December 2022. arXiv:2212.14710 [cs].

703. Bohan Yoon, Hyeonha Kim, Geonsik Youn, and Jongtae Rhee. 3d position estimation of drone and object based on qr code segmentation model for inventory management automation. In *2021 IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR)*, pages 223–229. IEEE, 2021.

704. Alex Yu, Vickie Ye, Matthew Tancik, and Angjoo Kanazawa. pixelNeRF: Neural Radiance Fields from One or Few Images. In *2021 IEEE/CVF Conference on Computer*

Vision and Pattern Recognition (CVPR), pages 4576–4585, June 2021. ISSN: 2575-7075.

705. Lu Yu, Xialei Liu, and Joost Van de Weijer. Self-training for class-incremental semantic segmentation. *IEEE Transactions on Neural Networks and Learning Systems*, 2022.

706. Wentao Yuan, Zhaoyang Lv, Tanner Schmidt, and Steven Lovegrove. STaR: Self-supervised Tracking and Reconstruction of Rigid Objects in Motion with Neural Rendering. In *2021 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 13139–13147, June 2021. ISSN: 2575-7075.

707. Yu-Jie Yuan, Yang-Tian Sun, Yu-Kun Lai, Yuewen Ma, Rongfei Jia, and Lin Gao. NeRF-Editing: Geometry Editing of Neural Radiance Fields, May 2022. arXiv:2205.04978 [cs].

708. Amad Zafar, Shaik Javeed Hussain, Muhammad Umair Ali, and Seung Won Lee. Meta-heuristic optimization-based feature selection for imagery and arithmetic tasks: An fnirs study. *Sensors*, 23(7), 2023.

709. C. Y. Zhang, Y. Y. Zhu, Q. F. Cheng, H. P. Fu, J. G. Ma, and Q. J. Zhang. Extreme learning machine for the behavioral modeling of RF power amplifiers. *IEEE MTT-S International Microwave Symposium (IMS), Honolulu, HI, USA*, pages 558–561, 2017.

710. Ce Zhang and Azim Eskandarian. A computationally efficient multiclass time-frequency common spatial pattern analysis on eeg motor imagery. In *2020 42nd Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*, pages 514–518, 2020.

711. Kai Zhang, Gernot Riegler, Noah Snavely, and Vladlen Koltun. NeRF++: Analyzing and Improving Neural Radiance Fields, October 2020. arXiv:2010.07492 [cs].

712. Ray Zhang, Zongtai Luo, Sahib Dhanjal, Christopher Schmotzer, and Snigdhaa Hasija. Posenet++: A cnn framework for online pose regression and robot re-localization.

713. Richard Zhang, Phillip Isola, Alexei A. Efros, Eli Shechtman, and Oliver Wang. The unreasonable effectiveness of deep features as a perceptual metric. In *2018 IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 586–595, June 2018. ISSN: 2575-7075.

714. Xiaodong Zhang, Xiaoli Li, Kang Wang, Yanjun Lu, et al. A survey of modelling and identification of quadrotor robot. In *Abstract and Applied Analysis*, volume 2014. Hindawi, 2014.

715. Yin Zhang, Xiao Ma, Jing Zhang, M. Shamim Hossain, Ghulam Muhammad, and Syed Umar Amin. Edge intelligence in the cognitive internet of things: Improving sensitivity and interactivity. *IEEE Network*, 33(3):58–64, 2019.

716. Bowen Zhao, Xi Xiao, Guojun Gan, Bin Zhang, and Shu-Tao Xia. Maintaining discrimination and fairness in class incremental learning. In *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition*, pages 13208–13217, 2020.

717. Chunhui Zhao, Bin Fan, Jinwen Hu, Limin Tian, Zhiyuan Zhang, Sijia Li, and Quan Pan. Pose estimation for multi-camera systems. In *2017 IEEE International Conference on Unmanned Systems (ICUS)*, pages 533–538. IEEE, 2017.

718. Shili Zhao, Song Zhang, Jincun Liu, He Wang, Jia Zhu, Daoliang Li, and Ran Zhao. Application of machine learning in intelligent fish aquaculture: A review, 7 2021.

719. Henghui Zhi, Chenyang Yin, Huibin Li, and Shanmin Pang. An unsupervised monocular visual odometry based on multi-scale modeling. *Sensors*, 22(14):5193, 2022.

720. Shaohong Zhong, Alessandro Albini, Oiwi Parker Jones, Perla Maiolino, and Ingmar Posner. Touching a NeRF: Leveraging Neural Radiance Fields for Tactile Sensory Data Generation. November 2022.

721. Xingguang Zhong, Yue Pan, Jens Behley, and Cyrill Stachniss. Shine-mapping: Large-scale 3d mapping using sparse hierarchical implicit neural representations. *arXiv preprint arXiv:2210.02299*, 2022.

722. Allan Zhou, Moo Jin Kim, Lirui Wang, Pete Florence, and Chelsea Finn. NeRF in the Palm of Your Hand: Corrective Augmentation for Robotics via Novel-View Synthesis, January 2023.

723. Da-Wei Zhou, Fu-Yun Wang, Han-Jia Ye, and De-Chuan Zhan. Pycil: A python toolbox for class-incremental learning. *arXiv preprint arXiv:2112.12533*, 2021.

724. Peng Zhou, Long Mai, Jianming Zhang, Ning Xu, Zuxuan Wu, and Larry S Davis. M 2 kd: Incremental learning via multi-model and multi-level knowledge distillation. *Memory*, 1000(3000):4000, 2000.

725. Yongchao Zhou, Ehsan Nezhadarya, and Jimmy Ba. Dataset distillation using neural feature regression. *arXiv preprint arXiv:2206.00719*, 2022.

726. Zewei Zhou and Martim Brandão. Noise and environmental justice in drone fleet delivery paths: A simulation-based audit and algorithm for fairer impact distribution. In *IEEE International Conference on Robotics and Automation*, 2023.

727. Haoyi Zhu, Hao-Shu Fang, and Cewu Lu. X-NeRF: Explicit Neural Radiance Field for Multi-Scene 360° \$Insufficient RGB-D Views, October 2022. arXiv:2210.05135 [cs].

728. R. Zhu, S. Chang, H. Wang, Q. Huang, J. He, and F. Yi. A versatile and accurate compact model of memristor with equivalent resistor topology. *IEEE Electron Device Letters*, 38(10):1367–1370, 2017.

729. Zhenxin Zhu, Yuantao Chen, Zirui Wu, Chao Hou, Yongliang Shi, Chuxuan Li, Pengfei Li, Hao Zhao, and Guyue Zhou. Latitude: Robotic global localization with truncated dynamic low-pass filter in city-scale nerf. *arXiv preprint arXiv:2209.08498*, 2022.

730. Jialin Zhu, Zhiqing Wei, Huici Wu, Chen Qiu, and Zhiyong Feng. Capacity of uav-assisted air-to-ground communication with random perturbation of uav platform. In *2020 International Conference on Wireless Communications and Signal Processing (WCSP)*, pages 275–279, 2020.

731. Bingbing Zhuang and Manmohan Chandraker. Fusing the old with the new: Learning relative camera pose with geometry-guided uncertainty. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pages 32–42, 2021.

732. Konstantinos C. Zikidis. Early warning against stealth aircraft, missiles and unmanned aerial vehicles. *Surveillance in Action: Technologies for Civilian, Military and Cyber Surveillance*, pages 195–216, 2018.

733. A. Zimmer, C. Ugarte-Gil, R. Pathri, P. Dewan, D. Jaganath, A. Cattamanchi, M. Pai, and S. Lapierre. Making cough count in tuberculosis care. *Communications Medicine*, 2:83, 2022.

734. M. Zimmermann, M. Kogadeeva, M. Gengenbacher, G. McEwen, H. Mollenkopf, N. Zamboni, S. Ernts, and U. Sauer. Integration of metabolomics and transcriptomics reveals a complex diet of mycobacterium tuberculosis during early macrophage infection. *mSystems*, 2:e00057–17, 2017.

735. R. Zimmermann and L. Thiede. Python library for reservoir computing using echo state networks, 2021. `https://github.com/kalekiu/easyesn`.

736. Daniel Zwillinger and Stephen Kokoska. *CRC standard probability and statistics tables and formulae*. Crc Press, 1999.

737. L. álvarez López, J. A. Becerra, M. J. Madero-Ayora, and C. Crespo-Cadenas. Determining a Digital Predistorter Model Structure for Wideband Power Amplifiers through Random Forest. *IEEE Topical Conference on RF/Microwave Power Amplifiers for Radio and Wireless Applications (PAWR)*, pages 50–52, 2020.