List of research paper, dataset, implementation projects

1. Topic: “Transfer Learning for P300 Brain-Computer Interfaces by Joint Alignment of Feature Vectors”
   Paper: https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=10197153
   Dataset: https://paperswithcode.com/paper/the-largest-eeg-based-bci-reproducibility-1
2. Topic: “Tange space alignment: Transfer learning for Brain-Computer Interface”
   Paper:https://www.frontiersin.org/journals/humanneuroscience/articles/10.3389/fnhum.2022.1049985/full
   Dataset: https://moabb.neurotechx.com/docs/datasets.html
3. Topic: “Dimensionality Transcending: A Method for Merging BCI Datasets With Different Dimensionalities”
   Paper: https://ieeexplore.ieee.org/abstract/document/9145615
   Dataset: Refer Dataset section inside the manuscript
4. Topic: “Electroencephalogram Emotion Recognition Based on Manifold Geomorphological Features in Riemannian Space”
   Paper: https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=10431692
   Dataset: Refer dataset section inside the manuscript for emotion datasets downloading links or references.
5. Topic: “Riemannian transfer learning based on log-Euclidean metric for EEG classification”
   Paper:
   https://www.frontiersin.org/journals/neuroscience/articles/10.3389/fnins.2024.1381572/full
   Dataset: https://www.bbci.de/competition/iv/
6. Topic: “Graph-based analysis of brain connectivity in schizophrenia”
   Paper: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0188629
   Dataset: https://repod.icm.edu.pl/dataset.xhtml?persistentId=doi:10.18150/repod.0107441
7. Topic: “SCZ: A Riemannian schizophrenia diagnosis framework based on the multiplexity of EEG-based dynamic functional connectivity patterns”
   Paper: https://www.sciencedirect.com/science/article/pii/S0010482524009478
   Dataset1:https://repod.icm.edu.pl/dataset.xhtmlpersistentId=doi:10.18150/repod.010744
   Dataset 2: http://protein.bio.msu.ru/~akula/korsak/Korsak-eng.htm
8. Topic: “Manifold Learning-Based Common Spatial Pattern for EEG Signal Classification”
   Paper: https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=10413532
   Dataset: Refer dataset section inside the manuscript for emotion datasets downloading links or references.
9. Topic: “Weighted directed graph-based automatic seizure detection with effective brain connectivity for EEG signals”
   Paper: https://link.springer.com/article/10.1007/s11760-023-02816-4
   Dataset: Refer dataset section inside the manuscript for emotion datasets downloading links or references.

10. Topic: “Speech synthesis from intracranial stereotactic Electroencephalography using a neural vocoder”
    Paper: https://real.mtak.hu/194221/1/InfocomJournal_2024_1_6.pdf
    Dataset: https://osf.io/nrgx6/
11. Topic: “Multivariate phase space reconstruction and Riemannian manifold for sleep stage classification”
    Paper: https://www.sciencedirect.com/science/article/pii/S1746809423010054
    Dataset: https://bridges.monash.edu/projects/The_Dream_EEG_and_Mentation_DREAM_database/158987
12. Topic: “Riemannian Geodesic Discriminant Analysis–Minimum Riemannian Mean Distance”
    Paper: https://www.mdpi.com/2227-7390/12/14/2164
    Dataset: Refer dataset section inside the manuscript for emotion datasets downloading links or references.

1. Topic: WearNeuroNet: An interpretable light-weight Deep Learning approach for Siena Scalp EEG database (using all channels) with LRP interpretability and comparison with vision transformer by stating the hyperparameter tuning separately for each model.

   Paper: https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=10197153
   Dataset: https://physionet.org/content/siena-scalp-eeg/1.0.0/
   Pruned Dataset: .csv format

2. Topic: “Consciousness localization using flux pipeline for subject CA107.”

   Paper: 1. https://www.sciencedirect.com/science/article/pii/S1053811922001768
   2. https://www.biorxiv.org/content/10.1101/2023.06.23.546249v2.abstract
   Dataset: sub-CA107
   Hint: https://www.neuosc.com/flux

3. Topic: “Consciousness localization using flux pipeline for subject CA103.”

   Paper: 1. https://www.sciencedirect.com/science/article/pii/S1053811922001768
   2. https://www.biorxiv.org/content/10.1101/2023.06.23.546249v2.abstract
   Dataset: sub-CA103
   Hint: https://www.neuosc.com/flux

4. Topic: “Conformer: Convolution-augmented Transformer for ictal-interictal classification and comparing it with benchmark models like vision Transformer, EEG Net, WearNeuronet by stating the hyperparameter tuning separately for each model”

   Paper: https://arxiv.org/abs/2005.08100

Dataset: https://physionet.org/content/siena-scalp-eeg/1.0.0/
Pruned Dataset: .csv format

5. Topic: Source reconstruction using an LCMV beamformer using MEG-MRI signal.

   Paper: 1. https://ieeexplore.ieee.org/abstract/document/623056
   Hint: https://mne.tools/dev/auto_tutorials/inverse/50_beamformer_lcmv.html
   Dataset: subject_1

6. Topic: An Inverse Problem Methods for Source Localization of Epileptic Meg Spikes using MNE.

   Paper: https://ieeexplore.ieee.org/document/8942008

   Dataset: subject_1

7. Topic: An Inverse Problem Methods for Source Localization of Epileptic Meg Spikes using dsPM.

   Paper: https://ieeexplore.ieee.org/document/8942008
   Dataset: subject_1

8. Topic: An Inverse Problem Methods for Source Localization of Epileptic Meg Spikes using sLORETA.

   Paper: https://ieeexplore.ieee.org/document/8942008
   Dataset: subject_1

9. Topic: Compute coherence in source space and the directionality of connectivity with multivariate Granger causality using a MNE inverse solution for Epileptic subject.

   Paper: https://journals.aps.org/pre/abstract/10.1103/PhysRevE.91.040101
   Hint1: Compute coherence in source space using a MNE inverse solution
   Hint2: https://mne.tools/mne-connectivity/dev/auto_examples/granger_causality.html
   Dataset: subject_1

10. Topic: Compute envelope correlations in source space and volume source space for Epileptic hub nodes using MNE and state the comparison between them.

    Paper: https://shorturl.at/ugTMQ
    Hint1: Compute envelope correlations in source space
    Hint2: https://shorturl.at/7b2dU
    Dataset: subject_1

11. Topic: DICS for power mapping using MNE for Epilepsy subject.

Paper: https://www.pnas.org/doi/full/10.1073/pnas.98.2.694
Hint: DICS for power mapping — MNE 1.7.1 documentation
Dataset: subject_1

12. Topic: Multiscale Wavelet Pooling Transformer Network for ictal-interictal classification and comparing it with benchmark models by stating the hyperparameter tuning separately for each model.

    Paper: https://arxiv.org/pdf/2405.11180v1
    Dataset: https://physionet.org/content/siena-scalp-eeg/1.0.0/

    Pruned Dataset: .csv format

1. Topic: Affective states recognition in immersive virtual reality (IVR)

   Paper: VREED: Virtual Reality Emotion Recognition Dataset Using Eye Tracking & Physiological Measures: Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies: Vol 5, No 4

   Dataset: VR Eyes: Emotions Dataset (VREED) (kaggle.com)

2. Topic: Study of P300 in flat screen and immersive virtual reality

   Paper: IEEE Xplore Full-Text PDF:

   Dataset:Dataset of an EEG-based BCI experiment in Virtual Reality and on a Personal Computer (zenodo.org)

3. Topic: Mental workload estimation in under physical activity

   Paper: WAUC: A Multi-Modal Database for Mental Workload Assessment Under Physical Activity - PMC (nih.gov)

   Dataset: WAUC Dataset – MuSAE Lab

4. Topic: Stress and Fatigue detection under physical activity

   Paper: Frontiers | PASS: A Multimodal Database of Physical Activity and Stress for Mobile Passive Body/ Brain-Computer Interface Research (frontiersin.org)

   Dataset: PASS Dataset – MuSAE Lab

5. Topic: Emotion analysis using physiological signals

   Paper: tac_special_issue_2011.pdf (qmul.ac.uk)

Dataset: DEAP: A Dataset for Emotion Analysis using Physiological and Audiovisual Signals (qmul.ac.uk)

6. Topic: Mental workload estimation during simultaneous task

   Paper: IEEE Xplore Full-Text PDF:

   Dataset:STEW: Simultaneous Task EEG Workload Dataset | IEEE DataPort (ieee-dataport.org)

7. Topic: Assaying neural activity under video game interaction

   Paper: iopscience.iop.org/article/10.1088/1741-2552/ab1876/pdf

   Dataset:Multi-modal mobile brain-body imaging (MoBI) dataset for assaying neural and head movement responses associated with creative video game play in children | IEEE DataPort (ieee-dataport.org)

8. Topic: Emotion recognition using multimodal signals

   Paper:IEEE Xplore Full-Text PDF:

   Dataset:IEEE Xplore Full-Text PDF:

9. Topic: EEG based motor imagery classification virtual reality

   Paper: An EEG motor imagery dataset for brain computer interface in acute stroke patients | Scientific Data (nature.com)

   Dataset: An EEG motor imagery dataset for brain computer interface in acute stroke patients | Scientific Data (nature.com)

10. Topic: EEG based grasp classification

    Paper: Multi-channel EEG recordings during 3,936 grasp and lift trials with varying weight and friction - ProQuest

    Dataset:Grasp-and-Lift EEG Detection | Kaggle

11. Topic: Affective states recognition in flat screen and immersive virtual reality

    Paper: IEEE Xplore Full-Text PDF:

    Dataset: GitHub - VREmotions/VRFS: Virtual Reality and Flat Screen Database

12. Topic: EEG based brain invaders: target vs non-target classification

    Paper: Building Brain Invaders: EEG data of an experimental validation - Archive ouverte HAL

    Dataset: GitHub - plcrodrigues/py.BI.EEG.2012-GIPSA: Code for working with EEG recordings of a visual P300 Brain-Computer Interface

1. Topic: “Interpretable human BCI and meditation system”

Paper: Mindfulness Improves Brain–Computer Interface Performance by Increasing Control Over Neural Activity in the Alpha Band
Dataset:https://figshare.com/articles/dataset/Human_EEG_Dataset_for_Brain-Computer_Interface_and_Meditation/13123148

2. Title :- Classification of Cervical Cancer in Ultrasound Images Using Generative and Explainable AI Techniques

   Paper: - Segmentation of Cervical Cell Images Based on Generative Adversarial Networks

   Dataset:- https://ieee-dataport.org/documents/cervical-cell-images

3. Title :- Towards a Responsible AI-Driven Healthcare System for Neurological Disease Management

   Method:- To create a responsible AI healthcare system for neurological disease, use explainable deep learning models, incorporate bias mitigation techniques, ensure secure data handling, adhere to regulatory standards, and implement continuous performance monitoring.

   Dataset:- https://openneuro.org/datasets/ds004504/versions/1.0.7

4. Title :- Interpretable AI-Driven Breast Cancer Classification: Integrating Generative Models with Clinical Transparency
   Paper :- Data augmentation guided breast cancer diagnosis and prognosis using an integrated deep-generative framework based on breast tumor's morphological information

5. Title :- Developing an Interpretable AI System for Emotion Classification: Balance Accuracy and Transparency
   Paper :- interpretable emotion recognition using EEG signals (https://ieeexplore.ieee.org/abstract/document/8762129)
   Dataset :- Deap dataset

6. Title :- Explainable AI based sentimental analysis
   Paper :- A Survey of Explainable Artificial Intelligence Approaches for Sentiment Analysis.

7. Title :- Explainable AI for Motor Imagery: Enhancing Transparency and Understanding in Brain-Computer Interfaces
   Paper :- Unraveling motor imagery brain patterns using explainable artificial intelligence based on Shapley values.
   https://www.sciencedirect.com/science/article/pii/S0169260724000440

8. Title :- Detecting Alzheimer's Disease with Transformer Models: An Advanced Approach to Early Diagnosis
   Hint 1:- https://github.com/wangyirui/AD_Prediction

   Hint 2:- https://github.com/huggingface/transformers

9. Title :- Explainable AI system for the brain tumor detection

   Hint 1 :- https://github.com/MohamedAliHabib/Brain-Tumor-Detection

   Hint 2:- Brain Tumor Classification (MRI)", [online] Available:

   https://www.kaggle.com/dsv/1183165.

   Hint 3:- Vision Transformers, Ensemble Model, and Transfer Learning Leveraging Explainable AI for Brain Tumor Detection and Classification

10. Title :- Interpretable AI Approaches for Headache Classification

    Hint 1:- Khan, L., Shahreen, M., Qazi, A. *et al.* Migraine headache (MH) classification using machine learning methods with data augmentation
    Hint 2:- Employ basic machine learning techniques and mathematically derive the classification of predicted outputs using various visualization methods such as t-sne plot explanation.

11. Title :- Interpretable AI for Weather Forecasting: Bridging Advanced Predictions with Clear Explanations
    Hint 1:- Lee, Y., Cho, D., Im, J. *et al.* Unveiling teleconnection drivers for heatwave prediction in South Korea using explainable artificial intelligence (data also available)

12. Title :- Interpretable mental health analysis using the social media using deep learning method
    Hint 1:- https://github.com/SteveKGYang/MentalLLaMA (data + paper)

1. Driver Drowsiness Detector with Eye Movements: drowsiness-detection · GitHub Topics · GitHub
2. Head Pose Estimation for Drowsiness Detection: https://doi.org/10.3390/app6050137
3. Driver Drowsiness Detection in Facial Images: https://doi.org/10.1109/IPTA.2018.8608130
4. Drowsiness Detection using EEG Signals https://archive.ics.uci.edu/dataset/121/eeg+database
5. Detecting Fatigue from Voice Using Speech Recognition: https://doi.org/10.1109/ISSPIT.2006.270865
6. Ensemble CNN to Detect Drowsy Driving with In-Vehicle Sensor Data: https://doi.org/10.3390/s21072372

7. Drowsiness Detection using Pulse Rate and Oxygen Saturation: https://archive.ics.uci.edu/dataset/495/ppg+dalia
8. Yawning Detection Using Facial Landmarks: https://doi.org/10.1109/TIM.2015.2507378
9. DDD TinyML: A TinyML-Based Driver Drowsiness Detection Model Using Deep Learning: https://doi.org/10.3390/s23125696
10. Driver drowsiness detection using computer webcam: https://github.com/signife/driver-drowsiness-detection
11. Drowsiness Detection using Video Streams: https://www.kaggle.com/datasets/banudeep/nthuddd2
12. Driver Drowsiness Multi-Method Detection for Vehicles with Autonomous Driving Functions: https://doi.org/10.3390/s24051541

Datasets -seed VIG, Multi-channel dataset(drowsiness)
Epilepsy - physio net
Seed VIG-https://cloud.bcmi.sjtu.edu.cn/sharing/5qMSv2vUN
Multi-channel dataset: cao et al
https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.nature.com/articles/s41597-019-0027-4&ved=2ahUKEwjA67jO7PaHAxViR2wGHW_0IDEQFnoECBEQAQ&usg=AOvVaw15CAYOApoTv1x-DFWu_3r4
Physionet epilepsy
https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://physionet.org/content/siena-scalp-eeg/&ved=2ahUKEwiJw5i28PaHAxVYhq8BHVUSBEAQFnoECBQQAQ&usg=AOvVaw1XFWY-m6u--acISu9ozt97
Ideas
1) **EEG based drowsiness classification to drowsy awake based on Reaction Time thresholding.**

https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.frontiersin.org/journals/physiology/articles/10.3389/fphys.2023.1196919/full&ved=2ahUKEwiN_sXj7PaHAxUme2wGHTPzKPQQFnoECAEQAQ&usg=AOvVaw0AoC-juNm-rTOQVFZaNQs_

2)EEG based drowsiness prediction of RT followed by drowsiness classification

3) **EEG drowsiness prediction/ classification based on Spiking neural network**
https://www.sciencedirect.com/science/article/pii/S235264832100074X
4) **EEG based transfer learning (attention+ essemble) approach for drowsiness detection**
https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.sciencedirect.com/science/article/abs/pii/S1746809423005633&ved=2ahUKEwii-rDK7vaHAxUEka8BHThiKxAQFnoECBEQAQ&usg=AOvVaw2jfLrt2qfWntNOaRAmN__a
5)EEG based transfer learning based on reservoir based SNN
6) Manifold attention techniques for EEG decoding
https://arxiv.org/abs/2210.01986
7)SNN for graph topology learning
https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://ieeexplore.ieee.org/iel7/7333/10031624/10049464.pdf&ved=2ahUKEwijib3j7_aHAxXYoK8BHWrXA5sQFnoECDcQAQ&usg=AOvVaw0g4prGPRNMirji28Unj5yZ

8) Transfer learning based on temporal spatial transformer
https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.sciencedirect.com/science/article/abs/pii/S1746809420302901&ved=2ahUKEwiGtPva8PaHAxVpaPUHHdxIDeMQFnoECBQQAQ&usg=AOvVaw2hq8MU2xpqABk-LOJeMLse

1. Facial Expression Recognition for Online Learning

- **Paper Title:** Enhancing Facial Expression Recognition System in Online Learning Context Using Efficient Deep Learning Model

  (https://ieeexplore.ieee.org/document/10287346)

- **Dataset:** FER2013 - Facial Expression Recognition (https://www.kaggle.com/datasets/msambare/fer2013)

2. Fuzzy Clustering for Lesion Segmentation

- **Paper Title:** Interclass Balance Factor-Based Membership Fusion Semi-Supervised Fuzzy Clustering Algorithm for Lesion Segmentation in Cerebral Infarction Images

  (https://ieeexplore.ieee.org/document/10623235)

- **Dataset:** Brain MRI Images for Brain Tumor Detection (https://www.kaggle.com/datasets/navoneel/brain-mri-images-for-brain-tumor-detection)

3. Stroke Prediction Using Parkinson's and Facial Analysis

- **Paper Title:** Early-stage Stroke Prediction Based on Parkinson and Wrinkles Using Deep Learning

  (https://link.springer.com/article/10.1007/s00521-024-10189-z)

- **Dataset:** Parkinson Dataset (https://www.kaggle.com/datasets/vikasukani/parkinsons-disease-data-set)

4. ML vs. Thresholding for Stroke Region Segmentation

- **Paper Title:** Machine Learning Algorithms Versus Thresholding to Segment Ischemic Regions in Patients With Acute Ischemic Stroke

  (https://ieeexplore.ieee.org/document/9488246)

- **Dataset:** Stroke Prediction Dataset((https://www.kaggle.com/datasets/fedesoriano/stroke-prediction-dataset)

5. Attention-Based Neural Network for Stroke Segmentation

- **Paper Title:** A Novel Multi-Scale Channel Attention-Guided Neural Network for Brain Stroke Lesion Segmentation

  (https://ieeexplore.ieee.org/document/10168904)

- **Dataset:** Brain MRI Segmentation(https://www.kaggle.com/datasets/mateuszbuda/lgg-mri-segmentation)

6. **Deep Neural Network for Digital Watermarking Analysis**
   - **Paper Title:** A Generalized Deep Neural Network Approach for Digital Watermarking Analysis (https://ieeexplore.ieee.org/document/9354230)
   - **Dataset:** Digital Watermarking Techniques Dataset(https://github.com/Saeid-jhn/Digital-Image-Watermarking)
7. **Classifying Stroke Onset Time with Machine Learning**
   - **Paper Title:** A Machine Learning Approach for Classifying Ischemic Stroke Onset Time from Imaging

     (https://ieeexplore.ieee.org/document/8651325)
   - **Dataset:** ISLES Stroke Lesion Segmentation(https://isles22.grand-challenge.org/dataset/ to download the data)
8. **Automated Stroke Prediction with Explainable AI**
   - **Paper Title:** Automated Stroke Prediction Using Machine Learning: An Explainable and Exploratory Study With a Web Application for Early Intervention

     (https://ieeexplore.ieee.org/document/10130159)
   - **Dataset:** Stroke Prediction Dataset(https://www.kaggle.com/datasets/fedesoriano/stroke-prediction-dataset)
9. **Brain Age Prediction with CNN and MLP**
   - **Paper Title:** Brain Age Prediction Using Combined Deep Convolutional Neural Network and Multi-layer Perceptron Algorithms

     (https://www.nature.com/articles/s41598-023-49514-2)
   - **Dataset:** UK Biobank - Brain Imaging(https://www.ukbiobank.ac.uk/enable-your-research/about-our-data/imaging-data)
10. **Ransomware Detection with Machine Learning**
    - **Paper Title:** Machine Learning Algorithms and Frameworks in Ransomware Detection

      (https://ieeexplore.ieee.org/document/9934917)
    - **Dataset:** Ransomware Detection(https://www.kaggle.com/datasets/amdj3dax/ransomware-detection-data-set)
11. **Detecting Crimes from CCTV with Object Detection**
    - **Paper Title:** Detecting Criminal Activities From CCTV by Using Object Detection and Machine Learning Algorithms

      (https://ieeexplore.ieee.org/document/10205699)

- **Dataset:** CCTV Footage Analysis(https://github.com/sanchit2843/Videoclassification)

12. **Ischemic Lesion Segmentation with Transformers**

- **Paper Title:** Concurrent Ischemic Lesion Age Estimation and Segmentation of CT Brain Using a Transformer-Based Network

  (https://ieeexplore.ieee.org/document/10155239)

- **Dataset:** RSNA Intracranial Hemorrhage Detection(https://www.kaggle.com/c/rsna-intracranial-hemorrhage-detection/data)
-

1.Diamond price prediction

a) Paper: Diamond Price Prediction using Machine Learning

Link: https://ieeexplore.ieee.org/document/9689412

DataSet: https://www.kaggle.com/datasets/shivam2503/diamonds

2.Loan Eligibility Prediction

Paper: Loan Eligibility Prediction using Machine Learning based on Personal Information
Link :https://ieeexplore.ieee.org/document/10073318
Dataset: Refer Dataset section inside the manuscript

3.Customer churn prediction

Paper: Customer churn prediction in telecom using machine learning in big data platform

Link: https://journalofbigdata.springeropen.com/articles/10.1186/s40537-019-0191-6

Dataset: https://github.com/ndutakanyora/SyriaTel-Customer-Churn

4.Census income analysis

a) "A Statistical Approach to Adult Census Income Level Prediction"

Link: https://arxiv.org/pdf/1810.10076

Dataset: https://archive.ics.uci.edu/dataset/2/adult

5.Taxi demand prediction

Paper: Taxi Demand Prediction in Real Time

Link: https://www.irjet.net/archives/V10/i9/IRJET-V10I915.pdf

Dataset: https://www.kaggle.com/code/ajaysh/taxi-demand-prediction

6.Real estate price detection

Paper: Real Estate Price Prediction Using Regression Techniques
Link:
https://www.researchgate.net/publication/371449091_Real_Estate_Price_Prediction_Using_Regression_Techniques

Dataset: https://www.kaggle.com/datasets/quantbruce/real-estate-price-prediction

7.Titanic survival prediction

Paper: Predicting the Survival Rate of Titanic Disaster Using Machine Learning Approaches

Link: https://ieeexplore.ieee.org/document/9058280

Dataset: Refer dataset section inside the manuscript for emotion datasets downloading links or references.

8.Big Mart Sales prediction

Paper: **Predictive Analysis for Big Mart Sales Using Machine Learning Algorithms**

Link: https://ieeexplore.ieee.org/document/9432109

Dataset: Refer Dataset section inside the manuscript

9.Predicting Wine quality

a) Prediction of Wine Quality Using Machine Learning Algorithms

Link: https://www.scirp.org/journal/paperinformation?paperid=107796

Dataset: UCL Machine Learning Repository

10.Depression detection using machine learning

Paper: "Depression Detection on social media using Machine Learning Techniques"

Link:https://www.researchgate.net/publication/352790583_Depression_Detection_on_Social_Media_using_Machine_Learning_Techniques

Dataset: Twitter API

11. Seismic Activity Prediction

Paper: "Seismicity analysis and machine learning models for short-term low magnitude seismic activity predictions in Cyprus"

Link: https://www.sciencedirect.com/science/article/abs/pii/S0267726119302192

Dataset: https://figshare.com/s/502500d9f3b3b6b11dbb

12.Inventory demand forecasting

Paper: Inventory Management and Demand Forecasting Improvement of a Forecasting Model Based on Artificial Neural Networks"

Link:
https://www.researchgate.net/publication/353035355_Inventory_Management_and_Demand_Forecasting_Improvement_of_a_Forecasting_Model_Based_on_Artificial_Neural_Networks

Dataset: https://www.kaggle.com/datasets/talhanazir168/store-inventory-demand-forecasting-dataset

1. An Intelligent Big Data Security Framework Based on AEFS-KENN Algorithms for the Detection of Cyber-Attacks from Smart Grid Systems.

   Dataset: UNSW-NB 15 dataset, CICIDS 2017 dataset

2. A Comprehensive Review on Charging Topologies and Power Electronic Converter Solutions for Electric Vehicles

   Link: https://ieeexplore.ieee.org/document/10215092

3. Artificial Intelligence and machine learning approaches for aviation cybersecurity: An Overview
   Link: https://ieeexplore-ieee-org-elibrary.mgcl.iitr.ac.in/stamp/stamp.jsp?
   tp=&arnumber=9441594
4. ML Based Number Plate Recognition Model using Computer Vision
   Link: https://ieeexplore.ieee.org/document/10270673/references#references
5. A Survey of Deep Learning Techniques for Cybersecurity in Mobile Networks
   Eva Rodríguez , Beatriz Otero, Norma Gutiérrez, and Ramon Canal , Senior Member, IEEE
   Link: https://ieeexplore-ieee-org-elibrary.mgcl.iitr.ac.in/stamp/stamp.jsp?tp=&arnumber=9447833
6. Artificial Intelligence (AI) and Machine Learning (ML)-based Information Security in Electric Vehicles: A Review
   Link: https://ieeexplore-ieee-org-elibrary.mgcl.iitr.ac.in/stamp/stamp.jsp?tp=&arnumber=10175817
7. Machine Learning-Enabled Cyber Attack Prediction and Mitigation for EV Charging Stations
   Link: https://ieeexplore-ieee-org-elibrary.mgcl.iitr.ac.in/stamp/stamp.jsp?tp=&arnumber=9916914
8. ML-Based Energy Consumption and Distribution Framework Analysis for EVs and Charging Stations in Smart Grid Environment
   Link: https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=10431772
9. Machine Learning Based Classification of Radar Signatures of Drones
   LInk: https://ieeexplore-ieee-org-elibrary.mgcl.iitr.ac.in/stamp/stamp.jsp?tp=&arnumber=9581973
10. **Low-altitude UAV Recognition and Classification Algorithm Based on Machine Learning**

Link: https://ieeexplore-ieee-org-elibrary.mgcl.iitr.ac.in/document/9516182

1. AI in Medical Imaging: COVID-19 Detection from Chest X-Rays

- **Reference Paper:** COVID-Net: A Tailored Deep Convolutional Neural Network Design for Detection of COVID-19 Cases from Chest X-Ray Images
- **Dataset:** COVID-19 Image Data Collection

2. Implement a Spiking neural network for image classification

Reference: https://jivp-eurasipjournals.springeropen.com/articles/10.1186/s13640-015-0059-4

Dataset: MNIST

3. CNN based architecture for image compression

Reference Paper: https://link.springer.com/article/10.1007/s42835-024-01803-0

Dataset: Refer dataset given in Paper, also other datasets can be used: Cifar-10, Cifar-100, TinyImageNet

4. Deep fake generation by GANs

Reference Papers: https://www.mdpi.com/1099-4300/23/12/1692

Dataset: Refer dataset section of paper

5. Painting completion by generative models (Image inpainting by GANs)

Reference Paper: https://link.springer.com/article/10.1007/s11042-018-6761-3

Dataset: refer dataset section of paper

6. Transformer based all in one weather-based Image Restoration

Reference Paper: https://ieeexplore.ieee.org/abstract/document/10196308

Dataset: Refer dataset section of the paper

7. Image deblurring

Reference Paper: https://ieeexplore.ieee.org/abstract/document/10077436

Dataset: Refer dataset section of the paper

8. Lightweight architecture for image superresolution task

Reference Paper: https://www.sciencedirect.com/science/article/pii/S0957417422019169

Dataset: Refer dataset section of the paper

9. Implementation of Deep learning models for generating captions of images

Reference Paper: https://www.sciencedirect.com/science/article/pii/S0950705123008067

Dataset: Refer dataset section of paper

10. Retinex based low light image enhacement

Reference Paper: https://www.nature.com/articles/s41598-023-46693-w

Dataset: Refer dataset section of the paper

11. Multi-space color correction and features prior fusion for single-image dehazing in non-homogeneous haze

Reference paper: https://www.sciencedirect.com/science/article/pii/S0031320324000414

Dataset: Refer dataset section of the paper

12. Implementation of CNN based architecture for image deraining task.

Reference Paper: https://www.sciencedirect.com/science/article/pii/S1077314223001467

Dataset: Refer dataset section of paper

1. Autoencoder-based Anomaly Detection in Images
   - Paper: "Anomaly Detection using Deep Learning Based Image Completion"
     Link: https://arxiv.org/abs/1811.06861

- Dataset: MNIST

2. Anomaly Detection in Network Traffic with CNNs
   - Paper: " A Deep Learning Approach to Network Intrusion Detection"
     Link: https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8264962
   - Dataset: UNSW-NB15 Dataset

3. Credit Card Fraud Detection using Autoencoders
   - Link: https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8264962
   - Dataset: Kaggle Credit Card Fraud Dataset

4. Video Frame Interpolation using Deep Learning
   - Link: https://openaccess.thecvf.com/content_ICCV_2017/papers/Niklaus_Video_Frame_Interpolation_ICCV_2017_paper.pdf
   - Dataset: Vimeo-90K

5. Video Super-Resolution using Temporal Attention Networks
   - Link: https://openaccess.thecvf.com/content_CVPRW_2019/papers/NTIRE/Wang_EDVR_Video_Restoration_With_Enhanced_Deformable_Convolutional_Networks_CVPRW_2019_paper.pdf
   - Dataset: REDS

6. Video Colorization
   - Link: https://arxiv.org/pdf/2305.13704
   - Dataset: FCVID video dataset

7. Implementation of Canny edge detection algorithm for cataract detection
   - Paper: Milena B. P. Carneiro, Antonio C. P. Veiga, Fernando C. Castro, Edna L. Flores and Gilberto A. Carrijo, "Processing the Segmentation Stage of an Iris Recognition System Through Evolutionary Algorithm", Journal of Communication and Information Systems, vol. 24, no. 1, 2009, pp.10-17
   - Dataset: Refer dataset section of the paper

8. Implementations of morphological operations erode and dilate for medical imaging
   - Paper: H. Hassanpour , N. Samadiani, S.M.Mahdi Salehi , "Using morphological transforms to enhance the contrast of medical images", The Egyptian Journal of Radiology and Nuclear Medicine, volume 46, issue 2 , june 2015, pp. 481-489.
   - Dataset: Refer dataset section of the paper

9. Image deblurring task

- Link: https://openaccess.thecvf.com/content/CVPR2022/papers/Zamir_Restormer_Efficient_Transformer_for_High-Resolution_Image_Restoration_CVPR_2022_paper.pdf
- Dataset: DPDD dataset

10. Image dehazing work
    - Link: https://arxiv.org/abs/2306.13090
    - Dataset: NH-Haze and Dense-Haze

11. Plant Disease Detection
    - Link: https://ieeexplore.ieee.org/document/7155951
    - Dataset: Plant Village Dataset

12. Image restoration
    - Link: https://ieeexplore.ieee.org/document/9879292
    - Dataset: Refer dataset section of the paper