AITAWADE ANIKET APPASO | 22EE65R18

SIGNAL PROCESSING AND MACHINE LEARNING

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2024	M.TECH	IIT Kharagpur	7.83 / 10
2019	Bachelor Of Engineering (Electrical)	Savitribai Phule Pune University	9.34 / 10
2016	Diploma in Electrical Engineering	Maharashtra State Board Of Technical Education	84.12%
2013	Secondary School Certificate	Maharashtra State Board	93.27%

COURSEWORK INFORMATION

- Machine Learning for Signal Processing
- Linear Algebra for Signals & Systems
- Digital Speech Processing
- Deep Learning: Foundations & Applications
- Statistical Signal Processing
- Digital Image Processing
- Artificial Intelligence: Foundations & Applications
- Geometric Methods for Computer Vision
- Probability & Random Processes for Signals & Systems
- Convex Optimization for Control and Signal Processing

SKILLS AND EXPERTISE

Key Skills: Speech Enhancement, Speech Recognition, Mispronunciation Detection, Speech Synthesis, Natural Language Processing, Image/Video Processing, Computer Vision
Programming Languages: C/C++, Python, Matlab, SQL | **Software Tools:** Kaldi, ESPnet, Git, Docker
Libraries: TensorFlow, PyTorch, Hugging Face, Librosa, OpenCV, Pandas, NLTK, spaCy

PROJECTS

Speech Enhancement using Deep Learning Approch | Mtech Thesis
- Developed a novel method called Adversarial Trained Transformer(ATT) and trained on Voicebank+DEMAND.
- ATT outperforms compared to conventionally trained SETransformer and SEGAN in terms of PESQ, SSNR and CBAK.
- ATT performs satisfactorily for the Hindi Language IndicTTS+DEMAND dataset while other models fail to do so.

Mispronunciation Detection and Diagnosis(MDD) | Mtech Thesis
- Implemented Attention-CTC based MDD model for Computer Assisted Pronunciation Training (CAPT) system.
- Model uses CNN-RNN block for audio encoding with prior phonetic transcript to predict pronounced phonemes.
- The model was trained on TIMIT and L2-ARCTIC datasets and achieved an F-score of 60.51%.

Lexical Stress Detection | MTech Thesis
- Implemented LSTM and attention based Automatic Lexical Stress Detection model for CAPT system.

Bengali.AI Speech Recognition | Self Project
- As a part of Kaggle competition, finetuned Wav2vec2.0 model for 1200 hrs of Bengali language data.
- Model tested on out-of-distribution Bengali speech and achieved a Word Error Rate (WER) of 0.36.

Extracting Attributes from Fashion Images | Self Project
- Project was done as a part of a private Kaggle competition with dataset consist of 16.4K train and 5.7K test images.
- Designed a model with "EfficientetB3" and attention module for extracting attributes from fashion apparel images.
- Achieved 72% accuracy in automated fashion classification with extracted attributes.

Extended Scale Invariant Local Binary Pattern For Background Subtraction | Course Project
- Extraction of color features and texture features(Local Binary Patterns) from each pixel of each frame of video.
- Using these features, each pixel location is classified into background(BG) or foreground(FG).
- Classified pixel locations will make a background model that updates with every frame.

Webpage: https://aaniketa.github.io

WORK EXPERIENCES

Siemens Ltd.
- After Diploma, joined Siemens Ltd. as a Junior Executive in the Customer Service(CS) team of Mumbai region.
- Led a 7-personnel team for the successful project of "4.7 MVA Alternator Refurbishment at ONGC SH Platform".
- Promoted to Executive Engineer in 2018 and managed CS for Large Motors & Generators in Mumbai region.
- Left Siemens Ltd. in August 2019 for Graduation.

AWARDS AND ACHIEVEMENTS

Qualified **GATE 2022** with **AIR 490** | **Class topper** in Diploma and B.E.| **School topper** in SSC
Runner up for “Game Of Circuits” in Alacrity-2019 organized by AISSMS IOIT, Pune

POSITIONS OF RESPONSIBILITY

Teaching Assistant for Digital Signal Processing Laboratory

Mentored the batch of 40 students in DSP laboratory during Autumn session of 2023.