Shanmukha Srinivas

Summary

I am PhD student at Ohio State University in the department Computer Science and Engineering under Prof. Deliang Wang. Previosuly, I worked as an Algorithm Developer in IP Media Division at Meeami Technologies Pvt Ltd. Later, I worked at Qualcomm, Hyderabad in Audio Team on neural network based speech enhancement, Voice activity detection and involved in optimizations and integration of these modules for voice call. I have nearly 3.5 years of experience in development of Speech Processing Algorithms. During this work tenure, I have worked on Source Separation, Echo Cancellation and Noise Suppression problem statements developing algorithms for real time systems on edge devices.

Work Experience

Engineer at QUALCOMM, Hyderabad   JUN 2019 - JAN 2021

PROJECT TITLE: **Echo Cancellation and Noise Suppression**

Worked on far field echo cancellation and noise suppression algorithms, optimizations, which include assembly coding, profiling, for Voice Recognition and Voice, VoIP call applications using Signal Processing and Deep Learning techniques.

Audio DSP Engineer at MEEAMI TECHNOLOGIES , Hyderabad   JUN 2017 - MAY 2019

PROJECT TITLE: **Blind Source Separation of Audio Mixtures**

The aim of the project is to estimate the sources from real world microphone observations.

- Frequency Domain Algorithms:

MULTI CHANNEL ALGORITHMS	SINGLE CHANNEL ALGORITHMS
Independent Component Analysis (ICA) Independent Vector Analysis (IVA)	Non-Negative Matrix/Tensor Factorization Deep Learning Techniques

- Time Domain Algorithms:
  - Second Order Statistics based Convolutive Mixture Separation
    * Filtered Outputs are uncorrelated for short blocks over multiple time lags
    * Minimising determinant of Output Cross correlation matrices
  - Higher Order Statistics based Separation : Diagonalisation of Cross correlation matrices between output and non-linearly transformed output
  - Online ICA
    * Online Whitening method
    * LMS, RLS type updates for achieving separation

PROJECT TITLE: **Interference Detector**

- Extracted Features such as Mean,Variance,Median ..etc from the Spectrum
- Long Term variability in the features to identify the regions

Intern at QUALCOMM, Hyderabad   MAY-JULY : 2016

- Crash analysis by extracting the parameters from the logs using Python
- C code development for DDR stress Analysis.

Computer Skills

Programming Languages:	C, Python, Matlab, C++
Tools:	Keras, PyTorch, OpenCV

Education

Jan 2021-Present	PhD, **Ohio State University** Major : Computer Science and Engineering
July 2017	Bachelor of Technology, **Indian Institute of Technology Hyderabad** Major : Electrical Engineering Minor : Entrepreneurship CGPA: 8.7
July 2013	Intermediate, Sri Chaitanya, Visakhaptanam Percentage: 98.1%
July 2011	SSC, Bashyam Public School, Srikakulam Percentage : 96%

Projects

2016-2017	**No-Reference Stereoscopic Video Quality Assessment Using Joint Motion and Depth Statistics** Steerable pyramid decomposition on Extracted Depth and Motion Features Model the relation between the Depth and Motion Features in sub-band domain . Quality predict using the model parameters. Estimating the depth from motion features and model parameters.
Jan-Apr : 2016	**Number plate Extraction from an Image** Locating the number plate region with Sobel Edge detector . Extracted number plate region is transformed into binary image. Template matching or SIFT or online OCR is used to extract the information.
Aug-Nov : 2015	**Learning 3D structure from a single image** Conversion from RGB domain to YCbCr domain and Filtering the Image Extraction of Features for each patch at multiple scales Modelling the relation between depth and features extracted at multiple scales for a patch. Predict the depth for a given image using the model parameters and features.
Jan-Apr : 2015	**JPEG 2000** Reversible color transformation on the image Discrete Wavelet Transform(DWT) and Quantisation Conversion to Bit-planes and Fractional Bit plane coding Arithmetic coding to the output of above stage

Publications

Balasubramanyam Appina, Akshith Jalli, **Shanmukha Srinivas Battula**, Sumohana S. Channappayya,*"No Reference Stereoscopic Video Quality Assessment Using Joint Motion and Depth Statistics", IEEE International Conference on Image Processing (ICIP), 2018*

AREAS OF INTEREST

- Speech Processing, Deep Neural Networks, Machine Learning, Audio Signal Processing

Achievements

- Ranked in top 0.1% in JEE MAINS, 0.4% in IIT JEE, 0.1% in EAMCET

- Scholarship Grants: MCM(B.Tech), Board of Intermediate

EXTRA CIRCULAR ACTIVITIES

- Graduate Teaching Assistant : Data-Structures and Algorithms
- Position of Responsibilities : Placement Coordinator, Hostel Representative
- Teaching Assistant : Optimisation, Device Physics
- Participated and Won in Inter departmental Badminton, Cricket and Cricket League

INTEREST AND HOBBIES

- Solving Puzzles, Reading Books, Playing Games(Cricket,Badminton,Table Tennis, Carroms)