Abhinau K Venkataramanan

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Graduate student at University of Texas at Austin pursuing PhD in Electrical and Computer Engineering. Passionate about Deep Learning and Image Processing with a strong background in signal processing and mathematics.

Education

Academic History

- **University of Texas at Austin** — **Austin**
  MS + PhD in Electrical and Computer Engineering , CGPA 4.00/4 — *2019–Present*
- **Indian Institute of Technology, Hyderabad** — **Hyderabad**
  BTech in Electrical Engineering , CGPA 9.77/10 — *2015–2019*
- **The Hindu Senior Secondary School** — **Chennai**
  High School, 97.4% — *2013–2015*

Miscellaneous

- **Coursera**
  Stanford Machine Learning, Offered by Dr. Andrew Ng — *2016*

Projects

- **Term Project (Fall 2019) Advisor: Prof. Alan Bovik :** *'Video Integrity Testing Using Minimal Learning'*

  Proposed a method to detect near-static videos using transfer learning and demonstrated robustness to choices of pretrained models. This allows for computation sharing, leading to more efficient deployment at scale.

- **Research Project with Facebook (Fall 2019) Advisor: Prof. Alan Bovik :** *'Optimizing Video Quality Estimation Across Resolutions'*

  Proposed a computationally efficient method to estimate the quality of HD videos compressed at lower resolutions. Accepted at MMSP 2020.

- **Semester Project (Semester 7) Advisor: Dr. Sumohana Channappayya :** *'Perceptually Driven Conditional GAN for Fourier Ptychography'*

  Proposed a perceptually driven Boundary Equilibrium Conditional GAN, with application to supervised magnitude and phase reconstruction in Fourier Ptychography. Accepted at Asilomar 2019.

- **Summer Internship (Summer 2018) Advisor: Prof. Katia Sycara :** *'Better Safe than Sorry: Evidence Accumulation Allows for Safe Reinforcement Learning'*

  Proposed a new architecture for a Reinforcement Learning agent based on a model of decision making in the brain and showed its advantages in environments where patience can be a virtue. arxiv:1809.09147

- **Course Project (Semester 6) Advisor: Dr. Sri Rama Murthy K :** *'Deep learning for Unsupervised Voice Activity Detection'*

  The goal of the project was to develop an unsupervised deep learning model that can detect voice activity in a speech signal. This is useful in VoIP systems where the cost of transmitting silence can be cut, leading

to lower data usage and better performance in low bandwidth networks.

- **Summer Internship (Semester 5) :** *'Semi Global Matching on the GPU'*

  Interned at Uurmi Group, C/o MathWorks.
  Developed an efficient implementation of the Semi Global Matching on the GPU.
  Being used by the company in their Autonomous Vehicle as an alternative to LASER range finders, which greatly reduces cost.
  Also being integrated to MATLAB's Computer Vision system toolbox.

- **Winter Project (Winter 2016-17) Advisor: Dr. Sumohana Channappayya :** *'No-Reference Quality Assessment of HDR Images'*

  We proposed a no-reference deep learning model to estimate the Mean Opinion Score of tone-mapped HDR Images. Due to the small size of dataset, this was achieved using transfer learning and dimensionality reduction.
  Paper has been accepted at QOMEX 2017, and is available on IEEE Xplore.

Skills

- **Languages:** C, C++, Python, CUDA
- **Basics of Languages:** SQL, HTML
- **Python Libraries:** Keras, Pytorch, Tensorflow, Numpy, OpenCV
- **Software:** MATLAB, LaTeX
- **Operating Systems:** Windows, Ubuntu

Positions of Responsibility

- Graduate Research Assistant at Laboratory for Image and Video Engineering - 2019-Present
- Student Head of Sunshine, the Counseling Cell of IITH - 2017-2018
- Literary Events Coordinator at ELAN 2017 - 2016-2017
- Quiz Club Coordinator at IITH - 2016-2017
- Editor at Lexicon, the Official Blog of the Literary Society, IITH - 2016-2017
- Core member of Elektronica, the Electronics club of IITH - 2016-2017
- Student Mentor at Sunshine, the Counseling Cell of IITH - 2016-2017

References

- Prof. Alan Bovik, Cockrell Family Endowed Regents Chair in Engineering and Director, Laboratory for Image and Video Engineering, University of Texas at Austin.
  Email: *bovik@ece.utexas.edu*, Website: *http://www.ece.utexas.edu/people/faculty/alan-bovik*
- Dr. Sumohana Channappayya, Associate Professor and Dean R&D, IIT Hyderabad.
  Email: *sumohana@iith.ac.in*, Website: *https://www.iith.ac.in/~sumohana/*
- Dr. Sri Rama Murthy K, Associate Professor and Head of EE Department, IIT Hyderabad.
  Email: *ksrm@iith.ac.in*, Website: *https://sites.google.com/iith.ac.in/ksrm/home?authuser=0*
- Prof. Katia Sycara, Resarch Professor and Director, Advanced Agent-Robotics Technology Lab, Carnegie Mellon University.
  Email: *katia@cs.cmu.edu*, Website: *http://www.cs.cmu.edu/~sycara/*