

Aravind Ganesh Pathapati

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🌐 AravindGanesh

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I am passionate about AI and have been working with deep learning since my 2nd year of B.Tech. I am primarily interested in the fields of Generative Adversarial Networks and Reinforcement Learning. I prefer to work on various machine learning and deep learning applications and research problems on image and video data. I like exploring new research in AI, and I love writing code in python and TensorFlow.

Education

2016 - present **Indian Institute of Technology Hyderabad**
BTech + Honors in Electrical Engineering, CGPA: 8.47

2014 - 2016 **Narayana Jr. College, Nellore**
High School, 97.4%
JEE Advanced All India Rank: 1453

Projects

- **Semester 7 project, Advisor: Dr. Sumohana Channappayya** : *Conditional GAN for Video Generation* (on going project)
We intend to build a GAN for video generation conditioned on optical flow. Our approaches include, modeling temporal statistics of optical flow, full reference quality assessment between real and fake optical flows, modeling of texture and semantics, etc.
- **Semester 7 project, Advisor: Dr. SaiDhiraj Amuru** : *Deep Reinforcement Learning for Communication systems* (on going project)
Our team aims to build an end-to-end model for the MIMO system using reinforcement learning techniques in the scenarios of noisy feedback and delayed feedback of loss. Our model does not assume a known channel model or perfect feedback.
- **Internship, Summer 2019** : at R&D intern at Philips Innovation Campus, Bangalore.
Worked on Data Augmentation of ultrasound image data using Generative Adversarial Networks.
- **Semester 6 Project, Advisor: Dr. GVV Sharma** : *Sobel filter on FPGA*
We implemented Sobel filter for edge detection on images, in verilog and deployed on iCoBoard.
- **Course Project, Semester 6, Advisor: Dr. Sri Rama Murthy K** :
Academic project as a part of the course *Sequence Modeling*. Analysis and implementation of the paper *CAN RECURRENT NEURAL NETWORKS WARP TIME?*
- **Semester 5 Project, Advisor: Dr. Kiran Kumar Kuchi** : *Fixed Point Digital Signal Processing*
Efficient Fixed Point implementation of signal processing algorithms like convolution, correlation and FFT - which were evaluated on real-time DSP.
- **Summer Project, 2018, Advisor: Dr.Sumohana** : *Real time Face and Gait Recognition*
 - Face Detection and Recognition on a security camera footage using openCV, DLib and FaceNet on videos(720p, 24fps) - achieved a 98% accuracy on a small test dataset.
 - Gait Recognition using HumanposeNN and GaitNN models - 92% accuracy on small custom test dataset
- **IEEE VIP-CUP, Summer 2018** : *Lung Tumor Segmentation*
Member in the team representing IIT Hyderabad in IEEE VIP-CUP, 2018. The problem statement was to achieve segmentation of lung tumors on DICOM images. Secured 6th position in the competition.

- **Internship, Summer 2018** : at Nemocare, CFHE, IIT Hyderabad
Developed bluetooth module to collect and transmit health data of infants using arduino IDE and open source I2C libraries.
 - **Semester 4 Project, Advisor: Dr. Sri Rama Murty K** : *Voice Activity Detection*
The goal was to build a Recurrent neural network model that can detect voice activity in speech signal and deploy the model on a Raspberry-Pi for real-time detection.
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Technical Expertise

- **ML and DL concepts** :
 - Generative Adversarial Networks • Reinforcement Learning • Neural Networks • CNN • RNN, LSTM
 - Autoencoders • Regression • Support Vector Machines • Representation Learning • Kernel Methods
 - **Python Libraries**: TensorFlow, Keras, PyTorch, NumPy, SciPy, scikit-learn, OpenCV
 - **Languages**: (basic level expertise) - C, C++, fortran, SQL, verilog
 - **Software**: MATLAB, git and GitHub, \LaTeX , Microsoft Office
 - **Operating Systems**: Ubuntu, Windows
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Co-Curricular and Extracurricular

- Teaching Assistant for courses Introduction to Modern AI, Representation Learning and Probabilistic Graphic Models - taught by Dr. Sumohana.
- Core member in Electronics club of IIT Hyderabad
- Participant in Inter-IIT Tech-meet, 2017.
- Active volunteer in various events orgaized by NSS, IIT Hyderabad
- I spend my free time watching Marvel movies and F.R.I.E.N.D.S and ocassionally video games.