AMIRTHA VARSHINI A S

+1 470-8125-349 ⋄ amirtha255@gmail.com ⋄ linkedin.com/in/amirtha-varshini-a-s-58420baa/ ⋄ amirtha255.github.io/

EDUCATION

Georgia Institute of Technology August 2021 - May 2023 (Expected)
Masters in Computer Science Overall GPA: 4/4
Teaching Assistant of CS 6603 - Artificial Intelligence, Ethics and Society Jan 2022 - Current
Prev Teaching Assistant of CS 7470 - Mobile & Ubiquitous Computing Aug 2021 - Dec 2021

National Institute of Technology Tiruchirappalli July 2014 - May 2018
Bachelor of Technology in Electronics and Communication Engineering Overall GPA: 8.90/10

COURSES

Computer Vision
Data Structures And Algorithms
Intro to Graduate Algorithms
Operating Systems
Deep Reinforcement Learning for Intelligent Control
Machine Learning
Deep Learning Specialization (Coursera)
Global Entreprenurship

PROFESSIONAL EXPERIENCE

Software Engineer in Qualcomm (Automotive Domain) July 2018 - August 2021
Bengaluru, India

- Created and designed Minidump feature on QNX Real time operating system as an alternative to system ramdump to capture snapshot of system post crash. Languages used - C and C++.
- The download time was reduced by 70% and the size reduced from 12GB to 300 MB, enabling quicker analysis
- Developed a GDB-based Python parser to extract system snapshot info from ramdumps for QNX SDP 710
- Automated parsing to generate logs from ramdumps, resulting in a 30% reduction of effort for debugging teams

Software Development Intern in Microland May 2017 to July 2017
Bengaluru, India

- Programmed a website as an admin interface for performing Microsoft Office 365 Admin activities
- Customized the data visualization of Skype for Business and Office 365 usage reports of the company employees.
- Languages used - Bash, Javascript, HTML/CSS

PROJECTS AND RESEARCH

Deep Reinforcement Learning based autonomous driving Jan 2022 - Current
Research for CS 8803 Deep Reinforcement Learning Georgia Tech, Atlanta

- Experimented with benchmarks DDPG, DQN, SAC, PPO on Parking-v0 , Carrracing-v0 and CARLA environments.
- Incorporated experience replay with best performing model-free RL algorithm Truncated Mixture of Continuous Distributional Quantile Critics (TQC) for navigation of model car in autonomous driving simulator Donkeycar.
- Trained a Variational Autoencoder to compress input into a latent space representation and improves rewards.
- Generated a semantic segmentation mask using another pretrained autoencoder.

Computer Vision Tools for Non-verbal Communication in Interviews Aug 2021 - Current
Research Advised by Prof. James Rehg Georgia Tech, Atlanta

- Training Hidden Markov Models, K Nearest Neighbours models using OpenFace keypoints generated on the videos in dataset for head gesture detection in interviews
- Experimenting with Multi CONV-LSTM models for estimating non-verbal communications exhibited by the job-seeker, such as gestures and facial expressions, which is crucial to the outcome of the interview

Semantic Similarity and Toxicity Detection of Questions in Quora Sep 2021 - Dec 2021
Coursework project of CS 7641 Machine Learning Georgia Tech, Atlanta

- Using Natural Language Programming methods Tf-Idf Vectorizer, Word2Vec on Quora Question-Pairs dataset and perform machine learning methods to determine the intent similarity and toxicity of questions

- Analyzed results of state-of-the-art models LSTM, BERT, GRU
- **Bonus Coursework of 18-661 Intro to ML for Engineers** May 2020 - July 2020
  Summer remote course from CMU
- Clustering of COVID-19 Data and modeled the growth rate of COVID in the states of the USA
- Trained decision tree and random forests to predict user's liking of a track with Spotify Dataset
- Implemented a Multi-layered Perceptron based system to classify Fashion-MNIST dataset
-
- **Low-cost intelligent vision in automotive (LIVA)** June 2019 - Oct 2019
  Qualcomm Maker's Challenge Qualcomm, Bengaluru
- Collected dataset of depth images using Kinect V2 mounted on a moving car. Performed object detection in real-time to recognize pedestrians and vehicles using retrained YOLO V3 model with depth images and Coco dataset
- Converted models to DLC format to run interference on Linux Vehicle platform using Qualcomm SNPE (Snapdragon Neural Processing Engine)

Real-Time Hand Gesture Recognition system Jan 2018 - May 2018
Bachelor's Thesis NIT Trichy

- Built a real-time hand gesture detection system by retraining Inception V3 Architecture on TensorFlow.
- Based on hand gestures, controlled home automation setup, and a custom-built robotic arm
- First author of a paper presented in 2nd International Conference on Frontiers of Artificial Intelligence and Machine Learning and published in ACM ICPS - **Paper Link**

SKILLS

Programming:	Python, C, C++ SQL, HTML, CSS, JS, PHP, Bash, TCL
Libraries:	PyTorch, TensorFlow, Scikit-Learn, Pandas, Numpy, OpenCV, Caffe, Keras
Skills:	Machine Learning, Computer Vision, Reinforcement Learning, Deep Learning
Platforms:	Linux (Ubuntu), QNX RTOS, ARM V8, CUDA, Flask architecture

HONOURS, AWARDS AND ACADEMIC ACHIEVEMENTS

Runner-up at Innovation Competition of VentureLabs, Georgia Tech, and funded for my research on Computer Vision tools for non-verbal communication in interview scenarios

Recipient of **K. C. Mahindra Scholarship** for Post Graduate Studies Abroad, 2021

Project on **'LIVA'** funded for prototyping as one of the **top 6 finalists out of the 230+ applicants in Maker's Challenge of QBuzz 2019**, the annual technology conference of Qualcomm

Poster on 'Automated Bug Triage with ML' **selected for Qualcomm ML Summit'19**

Received **two Qualstar recognitions** in Qualcomm for innovation and excellent delivery of results

Secured **First Place in Final Year Project Competition** organized by Sonata Software and Centre for Entrepreneurship Development and Incubation (CEDI) NIT Trichy in 2018

Recipient of **AIEEE Merit Scholarship for obtaining All India Rank 1448 under 2000 (Top 0.1% amongst 1,350,000 candidates)** in JEE mains Examination, 2014

Among the **top 1 percentile in the country** in class 12 (AISSCE) examinations and qualified for **Scholarship for Higher Education (SHE) under (INSPIRE) program** ,2014

Was declared the **Best Outgoing Student** of my batch during class XII in 2013

One of 30 selected students to be part of the **Research Science Initiative at IIT-M, 2013**

EXTRA-CURRICULARS

Head of Web Operations in Probe, ECE Department Symposium of NIT Trichy in 2018

Technical writer in online publications -Hackernoon, Towards Data Science - 2019

Excomm member in National Service Scheme, Member of AIESEC in NIT Trichy and Engineers Without Borders