

EDUCATION

IIITDM Kancheepuram (2015 – 2020)

- B. Tech + M. Tech in Computer Engineering. CGPA of 9.18
- **Gold Medal** for Best All-Rounder – Given to one student in the entire graduating batch of IIITDM
- Placement Head of Department
- Relevant courses: Analysis and Design of Algorithms, Embedded Systems, Computer Architecture, et al.

SKILLS

- Machine Learning, NLP, Computer Vision, Data Analysis, High-Performance Computing, Multi-threading.
- **Programming languages:** C++; C; Java; Python; Verilog; SQL; ARM (Assembly); MATLAB; Simulink
- **Libraries:** Tensorflow; Keras; Rasa; Corona SDK; OpenCV; OpenMP; ScikitLearn
- **Tools:** Arduino; Unity; Vuforia; Cadence Virtuoso; Intel VTune

Projects

Autonomous Underwater Vehicle (AUV) Society, Head of Computing

Designed and built (in house) an AUV that competed in the finals of the **Singapore AUV Challenge** (SAUVC-2019) that took place in March 2019 and ranked **top 20 in the world**. We used OpenCV to achieve basic vision for the AUV. I **co-lead** a team of 9 people to build and compete in the competition in Singapore.

Facial Emotion Recognition for Emotions in the Wild, M.Tech Project (Jan – June 2020)

Used Transfer Learning to classify facial emotions in the Indian context optimized for edge computing devices and mobile level hardware. Achieved similar accuracy (within ~3%) to the state-of-the-art model with 45x reduction in size.

Self-Balancing Platform

Implemented a platform to carry a payload based only on 2 wheels using control system (PID) to implement Self Balancing from scratch using a Raspberry Pi, an array of various sensors and machining the chassis.

EXPERIENCE

Software Engineer, June 2020 – July 2022

MathWorks India Pvt. Ltd.

- Improved performance of auto-generated Image Processing Toolbox code (~30% reduction in execution time)
- Integral part of effort to add the new Simulink Image datatype to key Computer Vision Toolbox products
- Local team expert on parallelization (SIMD and HPC) methodologies
- Made MATLAB and Simulink future ready for the new ARM Helium architecture, which promises 15x performance gain in machine learning applications
- Added to be released features for colorspace conversions in the Computer Vision Toolbox
- Worked on improving the DSP toolbox of Simulink using multi-threading and SIMD approaches (~2x performance gain)

MathWorks India Pvt. Ltd.

Spring Intern, Jan – June 2020

- Augmented the test infrastructure to get free coverage for performance regressions in the Image Processing Toolbox
- Gained expertise in Code Generation using MATLAB and Simulink
- Gained exposure to the various MathWorks products by solving real-world problems faced by customers

MathWorks India Pvt. Ltd.

Summer Intern, May – Oct 2019

- Implemented Lane Detection and Vehicle Detection using OpenCV and C++
- Experimented improvements on the runtimes of generated code for Image Processing Toolbox of MATLAB leading to a Proof of Concept to generate OpenMP Sections in resultant code leading to 35% gain in performance

CDAC Pune

Summer Intern, May – July 2018

- Implemented a hybrid conversational Chatbot for answering questions
- Used Deep Learning and Natural Language Understanding for query understanding
- Used a GRU cell to achieve equivalent performances compared to much larger standard LSTM models
- Also achieved equivalent results using pure Deep Learning and no prior language knowledge

Usability Consulting India

Summer Intern, May – July 2017

- Implemented Multiple apps and games on mobile platforms for a client
- Used UX design techniques and frameworks like Corona SDK to achieve the MVP
- Built the base of the project by clearly setting goals and designing the product