Ajinkya Prabhu

412-636-7619 | amprabhu@andrew.cmu.edu | ajinkyaprabhu | ajprabhu09 | Pittsburgh, Pennsylvania

Education

Carnegie Mellon University — Pittsburgh - Pennsylvania
Master of Science in Mobile and IoT Engineering - 3.73/4.0 — *May 2022 – Dec 2023*

- Coursework - Compiler Design*, Distributed Systems*, Intro to Computer Systems, Information Security* Embedded Systems, Computer Networks,

Vellore Institute of Technology — Vellore - Tamil Nadu
Bachelors in Electronics and Communication Engineering - 9.1/10 — *July 2016 – June 2020*

- Coursework - Digital Logic Design, Machine to Machine communication, Information Theory and Coding, Advanced Micro-controllers

Projects

X86 Back-trace

- A debugging library to print the back-trace of a function call without the need of an interactive debugger
- Uses **ELF debug symbols** and **x86 calling convention** of stacking **stack-frame register** in the current stack-frame

MixNet - Privacy Oriented Routing

- A protocol to obfuscate routing in networks prone to snooping and allows for a higher degree of privacy
- Employs random routing and the spanning tree protocol which provides **security, anonymity and fault tolerance**

Realtime Operating System Kernel

- A multithreaded kernel for the **ARM cortex M4** based **nrf52840** in **C and Assembly**
- Implemented context switching, mutex and scheduling using rate-monotonic and priority-ceiling protocol

Contributor - Vega

- Contributed to an open source project called **Vega** using the **Rust** programming language
- Developed a distributed compute operator which is **10x** faster than the popular **apache spark** platform

Work Experience

BlackRock — Gurugram, India
Software Engineer — *Jan 2020 – July 2022*

- Collaborated with five software engineers to develop a data lake called Regulatory Book of Records (RBOR)
- Employed industry standard frameworks such as **Apache Spark** and **Airflow** compute and automated workflows
- Spearheaded automated ingestion of securities data which pulls **600GB with 293 unique columns**
- Boosted batch query performance of securities data by **10x** as compared to original relational query engine

Mantra Labs — Bangalore, India
Software Engineering Intern — *May 2018 – June 2018*

- Analyzed and ported **I2S protocol** for a solid-state microphone on the **Beaglebone black** on linux driver platform
- Devised a facial recognition system for security cameras using the **FaceNet** research paper at an accuracy of **98%**

Research

ITC — Vellore Institute of Technology - Vellore
Student Researcher — *May 2019 – July 2019*

- Collaborated with a team of students to develop a prototype that detects defects in high aspect ratio objects
- Developed a convolutional neural network and image processing pipeling for object detection and classification
- Achieved an accuracy of **82%** while maintaining throughput of **five sticks per second**

Creation Labs - Team AutoZ — Vellore Institute of Technology - Vellore
Student Researcher — *Sept 2018 – Nov 2019*

- Collaborated with a team of 10 students to develop an autonomous mobile robot
- Led development of sensor localization using **kalman filters on GPS, inertial motion unit and wheel encoders**

Skills

Programming Languages: C, C++, Golang , Rust, Python, Scala, SQL,GNU Assembly
Technologies: GNU Toolchain, Linux, Git, CUDA, ROS, Apache Spark, Docker, Kubernetes, TensorFlow, PyTorch, Hadoop

Publications & Patents

Publication: Image Compression and Reconstruction Using Encoder-Decoder Convolutional Neural Network - Prabhu A., Chowdhary S., Narayanan S.J., Perumal B.
Patent: A scanning device for inspecting and sorting high aspect ratio objects and method thereof - N202041047428

Awards & Achievements

Merit Scholarship: Awarded merit Scholarship for exceptional academic performance for 2 consecutive years