Ajinkya Prabhu

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Education

Carnegie Mellon University — Pittsburgh - Pennsylvania
Masters in Mobile and IoT Engineering — *May 2022 – Dec 2023*
- Coursework - Intro to Computer Systems, Intro to Embedded Systems*, Networking and the Internet*

Vellore Institute of Technology — Vellore - Tamil Nadu
Bachelors in Electronics and Communication Engineering — *July 2016 – June 2020*
- GPA - 9.1/10.0

Projects

Dynamic Memory Allocator | *GitHub*
- Developed a malloc package implementation that achieved a peak performance of **74%** utilization while maintaining a throughput of $\sim$ **9000Kops** in C

CMU-TCP | *GitHub*
- A **User-Space RFC compliant** implementation of **TCP protocol** for reliable delivery and congestion control in C using threads

RTOS Kernel | *GitHub*
- Developed a Low-Level Realtime Kernel for the nrf52840 **ARM Cortex M4** based board with task scheduling, **mutexes and memory protection in C and arm assembly**

Contributor - Vega | *GitHub*
- Developed distributed set subtract operation in a low-level language (**Rust**) for the open source project which is a native (no language runtime) implementation of the Spark distributed query engine while being an **order of magnitude** faster

Work Experience

BlackRock — Gurugram, India
Analyst (Software Engineer I/Data Engineer) — *Jan 2020 – July 2022*
- Collaborated with a team of five software engineers to develop a data lake called RBOR (Regulatory Book of Records) with schema management and automatic ingestion on the Cloudera Data Platform (Spark)
- Increased adoption of RBOR platform across BlackRock
- Spearheaded ingestion of securities data (Airflow and Spark); ingested **600GB/week with 293 columns (100M rows)**
- Boosted batch query performance by an **order of magnitude**

Mantra Labs — Bangalore, India
Software Engineering Intern — *May 2018 – June 2018*
- Analyzed I2S protocol in its application to a solid-state microphone on the BeagleBone Black
- Devised a facial recognition system to recognize unknown faces in security cameras using FaceNet algorithm

Research

ITC — Vellore Institute of Technology - Vellore
Student Researcher — *May 2019 – July 2019*
- Collaborated with a team of 5 students to develop a prototype that detects defects in high aspect ratio objects
- Developed a Convolutional Neural Network in tandem with an image processing pipeline 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 to compete in IGVC competition
- Led development of sensor localization and electrical drive subsystem

Skills

Programming Languages: Python, Java, Scala, C, C++, SQL, Rust, MATLAB, Assembly
Technologies: Git, Arduino, ROS, LaTeX, Spark, Docker, Kubernetes, TensorFlow, PyTorch, Hadoop, Linux
Languages: English, Hindi, Marathi

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