Vimarsh Sathia

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EDUCATION

Indian Institute of Technology, Madras, *Chennai, India*
Bachelors of Technology in Computer Science *July. 2017 – June. 2021(expected)*
GPA : 9.08/10 (after 7 semesters)

ACHIEVEMENTS

- Awarded the first place at JARVIS - the Data Analytics hackathon event at Shaastra 2020, an All India tech fest organized by IIT Madras

WORK EXPERIENCE

Microsoft, *Hyderabad, India*
Software Engineering Internship *May. 2020 – July. 2020*

- Designed an API for bulk reading of contacts in a database, with support for asynchronous scheduling and execution based on the availability of server resources.
- Tested and delivered a succesful end to end implementation of the same in C#
- Performed further optimizations on the API to reduce the intermediate metadata size used from 400 MB to 20 MB.

Actify Data Labs, *Bangalore, India*
Analytics Intern *June. 2019 – July. 2019*

- Worked on generating synthetic data from vector training datasets
- Implemented the above in Java by building empirical copula models and drawing output points from them.

DXC Technology, *Bangalore, India*
Intern *June. 2018 – July. 2018*

- Implemented standard quantum computing algorithms like Grover's Search and Shor's Prime Factoring using the Q# language. Featured in company tech blog posts here and here.

PROJECTS

Implementing GPU-Parallel Genetic Programming in cuML
Bachelor's Thesis (under Prof. Rupesh Nasre in collaboration with Nvidia) *Feb. 2021 – Ongoing.*

- The aim is to parallelize symbolic regression and transformation using *CUDA* in the cuML machine learning library.
- Uses a device side stack-based model for expression tree evaluation and tournament selections.

Alias and MHP Analysis for Java subsets
CS6235: Analysis of Parallel Programs *Jan. 2021 – May. 2021*

- Implemented a context insensitive flow insensitive may alias analysis for qTACoJava, a subset of the Java language.
- Reimplemented the flow sensitive MHP(May Happen in Parallel) analysis described in this paper for qParJava, a intraprocedural multi-threaded subset of the Java language.

Image Classification using Self-Calibrated Convolutions
CS6910: Deep Learning *Jul. 2020 – Nov. 2020*

- Course project on analyzing the effect of self-calibrated covolutions(introduced here) on standard image classification datasets.
- Compared performance of pretrained *SCNet* and *ResNet* models by adapting them to the Imagenette and Imagewoof datasets using transfer learning. Also visualized resulting attention maps using *Grad-CAM*.

Permissioned Distributed File Sharing System
CS6666: Blockchain and Distributed Ledgers *July. 2020 – Nov. 2020*

- Built a cloud-based distributed file-sharing decentralized app which uses a blockchain ledger to manage data access and record snapshots.
- Used a VM cluster running IPFS daemons for data storage, the Ropsten Testnet for transactions, and a React frontend hosted here.

Conway's Game of Life
CS6023: GPU Programming *Jan. 2020 – May. 2020*

- Course project on a parallel implementation and visualization of cellular automation using GPUs.
- Used *CUDA* and *OpenGL* in tandem for parallel texture based rendering and next generation computation.

RELEVANT COURSEWORK & SKILLS

Machine Learning: Linear Algebra, Pattern Recognition, Deep Learning, Numerical Optimization, Numerical Methods, Applied Statistics
Program Analysis: Parallel Program Analysis, Compilers, GPU Programming, Functional Programming
Systems: Operating Systems, Computer Networks, Blockchain and Distributed Ledgers

EXTRA-CURRICULARS

Squash: Member of the institute squash team at IIT Madras
Comedy: Member of the Comedy Club at IIT Madras, participating and organizing open mics and improv meetups