Aditya Mohan

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EDUCATION

State University of New York at Binghamton, Binghamton, New York Jan 2024 – Present

Pursuing Doctor of Philosophy (PhD)
Focus Areas: Computer Architecture, High Performance Computing, Heterogeneous Integration
Principal Advisor: Prof. Kanad Ghose

Master of Science in Computer Science Jan 2022 – Dec 2023
Relevant Courses: Adv. Object-Oriented Programming, Operating Systems, Visual Information Processing, Computer Architecture and Organization, Deep Reinforcement Learning, High Performance Computing, Design Patterns.
Achievements: Full academic year scholarship awarded under the SUNY SPIR program.

Jaypee University of Information Technology, Solan, India Jul 2016 – Jul 2020
Bachelor of Technology in Computer Science
Relevant Courses: Image Processing, Software Engineering, Graph Algorithms, Business Analytics, Deep Learning, Data Structures.

TECHNICAL SKILLS

Programming Languages: Python, C++, C, Rust, CUDA, Java, SQL, HTML, CSS.
Tools and Technologies: Linux, Git, Postman, PostgreSQL, REST, NATS, VS Code, Eclipse IDE, Github Actions, SLURM.
Libraries: OpenCV, FiftyOne, Flask, FastAPI, PyTorch, Regex, Matplotlib, Pandas, Numpy, PyMongo, Streamlit, PyTest.

WORK EXPERIENCE

HID Global, Austin, TX May 2023 – Oct 2023

Data Scientist Intern

- Implemented the complete standardized data pipeline for 17 open-source re-identification (ReID) datasets that collectively contained around a million images using Python and PyTorch. Performed image feature similarity analysis on ReID dataset and developed informative data visualizations.
- Developed an application to enroll a person by capturing their pictures for a facial recognition system using Streamlit.
- Reviewed newer datasets and methods for Person ReID and presented findings in weekly research meetings.
- Collated and implemented different loss functions for the Person ReID task using Python and PyTorch.

Egregore Labs, New Delhi, India Oct 2020 – Dec 2021

Analyst Developer - Engineering

- Researched and developed the in-house OCR engine for scanned financial documents and achieved 90% accuracy as compared to AWS Textract using Python, Tensorflow, and Flask
- Implemented the intelligent document information extraction pipeline feature with a dual approval system which handled thousands of documents with over 50 points of information to be collected using Postgresql, SqlAlchemy, Flask, and Pattern Recognition.
- Worked on a pilot project based on automating the extraction of data from complex financial documents for one of the largest P&C insurance company and lead the development and planning of backend APIs required for the human-in-the-loop version of the same product. (Python, Flask)
- Worked on the development of modules for OCR and document classification for an AI-driven enterprise solution that automated document processing & surfaced critical insights which enabled quicker & better decisions.

SELECTED PROJECTS

A Neural Network Implementation in CUDA

- Implemented from scratch various neural network related modules in CUDA. Trained a network of fully connected layers on MNIST dataset for image classification. Leveraged CUDA Thrust library to implement some operations.
- Achieved 3x performance improvement as compared to sequential neural network implementation which only used CPU for training.

An Out-of-Order CPU Simulator

- Implemented an APEX CPU simulator in C programming language for an out-of-order processor.
- This simulator comprised of concepts like register renaming, load-store queue, issue queue, dcache, and a reorder buffer.
- A static branch prediction was added as well in the form of a small BTB.