Abhinand Jha

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Education

Carnegie Mellon University — Pittsburgh, PA
Master of Science in Electrical and Computer Engineering – GPA 4.0/4.0 — *Jan 2022 – Dec 2023*
Relevant coursework: Machine Learning for Engineers, Intro to Deep Learning, Foundation of Computer Systems, Data, Cloud Computing

Manipal Institute of Technology — Karnataka, India
Bachelor of Technology in Electrical Engineering – GPA 9.1/10.0 – Gold Medalist — *May 2016 – Aug 2020*
Relevant coursework: Data Structures and Algorithms, Linux shell scripting, Python programming, Neural Networks and Soft computing

Experience

Deloitte USI — Hyderabad, TS, India
Data Analyst — *Sept 2020 – Dec 2021*

- Secured **1st position** out of 30 teams in a firm-wide Hackathon by developing a tool that generates ontologies from text documents, deployed in production – eliminating the operational burden of **100 man-hours/year**
- Collaborated with DevOps and front-end teams to build REST APIs for an internal Auto-ML application and composed a fully managed **MLOps pipeline** following industry best practices for testing and deploying models
- Developed a data migration pipeline and set up a cloud data warehouse to migrate over **50M data points** from legacy databases to the cloud, saving **40 man-hours/week** overall
- Received **Applause Awards (x2)** for automating customer data onboarding for a national bank by developing a feature that migrated data from multiple sources in a single click

Carnegie Mellon University — Pittsburgh, PA
Computer Vision Graduate Researcher — *Jan 2022 – Present*

- Led effort to research and conceptualize a novel **self-supervised** deep learning method for few-shot segmentation of MRI/CT scans, achieving performance comparable to state of the art
- Performed extensive ablation studies by evaluating multiple models on diverse datasets – **submitted a research paper** based on the findings

Projects

AUTO-ONTO (Hackathon winning submission) | *Python, PyTorch, MySQL, Docker*

- Application to automatically extract keywords and inherent hierarchical relationships from large text corpus by employing NLP, Word Embeddings and clustering [ppt][code]

Concurrent web-proxy server | *C, socket, pthread*

- A multi-threaded concurrent proxy server with a Least Recently Used (LRU) cache written in C using pthread and socket libraries. Synchronization is attained between multiple clients through mutexes and reference counting

Custom Memory Allocator | *C*

- A segregated free-list based memory allocator to manage heap memory. Supports FIFO and LIFO insertion policies as well as next, first and best fit allocation policies. Segregated list implemented as a circular doubly linked list

Pyox Programming Language | *C++*

- High-level dynamically typed language, written in C++ with a tree-walk Interpreter, Lexer, Scanner, Error synchronization and Automatic garbage collection, using visitor design pattern [code]

Publications

- *Chaotic clock driven cryptographic chip: Towards a DPA resistant AES processor,* A.A.El-Moursy, A.M.Darya, A.S.Elwakil, A.Jha, and S.Majzoub IEEE Transactions on Emerging Topics in Computing. 10(2):792–805, 2022, [article]

Technical Skills

Languages: C, C++, Python, SQL, JavaScript, HTML, CSS

Frameworks and tools: Pytorch, Tensorflow, Apache Airflow, Jenkins, Flask, AWS, Oracle OCI, Docker, git