

Aushim Nagarkatti

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EDUCATION

Carnegie Mellon University

Master of Science in Electrical and Computer Engineering - Applied Advanced Study, QPA:4.0/4.0

Pittsburgh, PA

May 2022

Relevant Courses: Fundamentals of Computer Systems (18-613), Introduction to Machine Learning for Engineers (18-661), Algorithms for Large Scale Distributed Machine Learning and Optimization - current (18-667), Intro to Computer Architecture - current (18-447), Autonomous Systems - current research

PES University

Bachelor of Technology in Electronics and Communication Engineering, CGPA:8.58/10

Bangalore, India

May 2020

Relevant Courses: Parallel and Distributed Computing, Embedded Systems, Microcontrollers, Logic Design, Digital Signal Processing, Pattern Classification, Neural Networks

SKILLS

Programming Languages: C, Python, Assembly (x86-64), VHDL, C++, SQL

Software: Networking, Synchronization, Linux Scripting, Matlab, gdb, Git, Jenkins, Docker, Azure, Multithreading, Parallel Processing

PROJECTS

Malloc Heap Manager, 18-613 CMU

- Coded a working replica C library for Malloc, to efficiently manage heap memory, using doubly linked and segregated lists. Scored 100/100, passing all test cases

Cache Manager, 18-613 CMU

- Wrote C code to simulate behavior of Cache in hardware. Optimized code for a matrix transpose function to minimize Cache misses, with feedback from the Cache Manager. Obtained transpose of a 63x65 matrix in 264408 cycles, scoring 90/90, passing all test cases

Linux Shell, 18-613 CMU

- Designed a replica Linux Shell in C, supporting simple job control and I/O redirection. Implemented Multiprocessing to support background and foreground jobs, and Signal Handling for job control. Obtained a score of 90/90, with all test cases passing

e-Yantra: Robotics Competition, IIT Bombay

- Programmed a drone to autonomously navigate and land on a moving marker, utilizing an overhead camera
- Processed image feed from the camera to extract the drone's position and designed a PID for it to navigate. Attained a spot on the Top Ten Leaderboard out of a few hundred teams in India

RESEARCH EXPERIENCE

Autonomous Systems - Safety Mechanisms in Self Driving, CMU

Jan 2021-Present

- Studying traction performance and mobility of a self-driving car in an icy setting

Research Assistant- Center for Neuroscience, Indian Institute of Science

Oct 2018-Jan 2020

- Recorded hand movements from motion tracking sensors. Ran simulations on this data to find corresponding Neural Activations and validated results through Forward Dynamics
- Constructed a Recurrent Neural Network to approximate Velocity Profiles of reaching movements

Research Intern, Microsoft Innovation Lab

May 2018-Oct 2018

- Cleaned and processed EEG data for a Motor Imagery-based Brain Computer Interface. Tested and developed a Machine Learning model to classify trials into four classes- Left Hand, Right Hand, Feet, Tongue
- Achieved accuracy of above 75%. Publication: "Extreme Gradient Boosting Classification of Motor Imagery using Common Spatial Patterns", IEEE (INDICON), December 2020

Hitachi Pentaho Summer Internship

Oct 2017-May 2018

- Analyzed data from PPG sensors to non-invasively estimate Lipid Levels in blood. Plotted inferences and demonstrated a positive correlation between Pulse Wave Velocity and Lipid Deposition levels. Presented a report to the Hitachi-Pentaho team on the practicality of the Pentaho software for Data Analytics

EXPERIENCE

Optum, UnitedHealth Group

Bangalore, India

Associate Software Engineer II

Aug-Dec 2020

- Set up and maintained Azure Cloud Infrastructure for the Medicare & Medicaid Portals (USA)
- Migrated an on-premise Oracle database to Azure SQL Managed Instance on Cloud. Created Database Schemas and implemented Stored Procedures for the Managed Instance, reducing on-premise maintenance overheads

Nokia

Bangalore, India

Software Engineering Intern- Analytics and Workflow

Jan-June 2020

- Created an application to visualize Data Analytics Pipelines from json schemas
- Developed and enhanced features for a GUI Data Analytics Platform, containerized and deployed it for end-user Data Science applications

AWARDS

- Opal Performance Award, Optum : Stored Procedure Migration to SQL Server December 2020
- Diamond Relationships Award, Optum : Team Building and Positive Work Culture November 2020
- Aquamarine Performance Award, Optum : Proactive migration of Database Objects & Tool Evaluation December 2020