Sam Duong

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Experience

NASA Ames Research Center, Mountain View, California, United States June 2023 - August 2023

OSTEM Planning and Scheduling Group (Intelligent Systems Division) Intern

- Developed a portfolio of AI search/planning algorithms in C for the Artemis Gateway ASO-VSM project (Autonomous Systems and Operations Vehicle System Management)
- Integrated BFS, Beam, A*, IDA*, and RBFS with a POP. Peak memory load reduced by 86%, runtime by 10%
- Built a new search algorithm hybridization technique that dynamically switches between algorithms during search to optimize for a more extensive range of search scenarios
- Implemented an incremental multiset hashing system that detects and stores duplicate partial plans which further improved peak memory load by 38% and runtime by 57%

Kuriosity Robotics March 2018 - May 2022

Team Captain/Founder

- In charge of all team operations such as building/programming robots, outreach initiatives, logistics, and finances
- Built catmull rom spline path generation, pure pursuit, and bitmap analysis of vision targets on Android
- Designed and manufactured 7 FTC competition robots using CAD (Fusion 360, OnShape), CNC, and 3D printer

Caterpillar Inc. June 2021 - August 2021

Software Development Intern

- Developed a discrete event simulation in SimPy to optimize the battery manufacturing supply chain. Allows users to test different logistic parameters (ie. location of distribution centers, # of battery plants, etc.)
- Implemented a visual simulator using networkx and matplotlib to visualize the battery logistic simulation

Caterpillar Inc. June 2020 - August 2020

Software Development Intern

- Created a workflow in Python to generate 3D models of excavators from a MySQL database into a 3D simulator
- Developed a moving mean algorithm in Python to read hydraulic sensor data to determine the type of tool head

Education

Brown University | Bachelor of Science - Sc.B. in Computer Engineering September 2022 - May 2026

Relevant Coursework (GPA: 4.0) - Introduction to Computer Systems, Program Design with Data Structures and Algorithms, Electricity and Magnetism, Materials Science, Dynamics and Vibrations

Projects

Music Social Media App

- Currently working on a music-focused social media app using Flutter and Appwrite with 2 friends
- In charge of developing codebase infrastructure (ie. APIs, auth flow, controllers, database schema)

Mini Solar Car Project

- Worked with a team of 3 to design and test a solar car that would be able to scale different ramp grades
- Performed calculations based on solar panel output to optimize the gearbox, weight, and speed of the car

Skills

Java, C, Python, Dart, Typescript, Javascript, SQL, Matlab, GDB, Git | Fusion 360, Onshape, CNC, 3D Printing

Frameworks, Platforms, OS - Flutter, React Native, MySQL, Appwrite, Docker, Linux, Android