Sam Duong

Palo Alto, CA 94301 | Phone: (650) 643-9377 | E-Mail: sam_duong@brown.edu
LinkedIn: www.linkedin.com/in/sam-duong | Personal Website: https://samduong.com/

EDUCATION

Brown University, *Sc.B. Computer Engineering*, 4.0/4.0 GPA   Providence, RI | **Expected Graduation May 2026**
Relevant Courses**:** Introduction to Computer Systems (In Progress), Program Design with Data Structures and Algorithms, Electricity and Magnetism (In Progress), Materials Science (In Progress), Dynamics and Vibrations, Introduction to Object-Oriented Programming and Computer Science, Introduction to Engineering: Design

EXPERIENCE

NASA Ames Research Center, *OSTEM Planning and Scheduling Group Intern*   Mountain View, CA | June 2023 – August 2023
- Developed and integrated a portfolio of AI search/planning algorithms in C for the Artemis Lunar Gateway ASO-VSM project (Autonomous Systems and Operations Vehicle System Management)
- Integrated A*, IDA*, RBFS, Beam, and BFS with a partial order planner. 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%
- Enhanced duplicate detection efficiency using a planner bit mask algorithm

Caterpillar Inc, *Software Development Intern*   Remote | June 2021 – August 2021
- Wrote a discrete event simulation in SimPy (Python) 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, *Software Development Intern*   Remote | June 2020 – August 2020
- 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 being used on the excavator
- Designed CAD models (Onshape) of work tools for the simulator such as hammers, drills, and buckets

Kuriosity Robotics Inc, *Team Captain/Founder*   Palo Alto, CA | March 2018 – May 2022
- Responsible for all team operations such as building/programming robots, outreach initiatives, logistics, and recruitment
- Led the team from rookies to 2 world championships
- Built Catmull-Rom spline path generation, pure pursuit, and bitmap analysis of vision targets on Android (Java)
- Designed and manufactured 7 FTC competition robots using CAD (Fusion 360, OnShape), CNC, and 3D printing

KBiteLabs, Co-*Founder*   Palo Alto, CA | July 2023 – Present
- Startup (stealth mode) with a Brown University and Stanford student
- In charge of technical development of products such as building the app architecture, research of new tools, and UI design

PROJECTS

Music Social Media App
- Currently working on a music-focused social media app using Flutter and Appwrite with 2 friends (KBiteLabs)
- Developing codebase infrastructure (ie. APIs, auth flow, controllers, database schema)

Personal Assistant Manager App (PAM)
- Working on a personal assistant manager app that uses screenshots to automatically add events to a centralized calendar
- Future features include learning a user's tendencies to predict reoccurring events such as weekly meetings

Mini Solar Car Project
- Worked with a team of 3 to design and test a mini 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

Machine Learning Decision Tree for NFL Hall of Fame Players
- Made a decision tree algorithm in Python to predict if an NFL player would make it into the Hall of Fame

Custom Shell
- Wrote a shell in C with integrated commands (cd, ln, input-output redirection, append, fg, and bg) and command executions
- Implemented foreground and background process management using signal handling

SKILLS & INTERESTS

Programming Languages: Java, C/C++, Python, Dart, Typescript, Javascript, HTML, CSS, SQL, Matlab
Frameworks/Tools/OS - Flutter, React Native, Tailwind, Next.js, MySQL, Appwrite, Git, GDB, Docker, Linux, Android
Other Engineering Skills: CAD (Fusion 360, Onshape), CAM, CNC, 3D Printing, Electrical Wiring, Motors, Sensors, Arduino