JONATHAN MA

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Java | Python | App Dev | Automation | Robotics | OpenCV

Education

Cornell University, College of Engineering (Ithaca, NY): Anticipated Graduation May 2025

- Computer Science (BS), GPA: 4.13
- Selected Coursework: OOP & Data Structures (Java), Multivariable Calculus
- Spring 2023 Coursework: Functional Programming (OCaml), Discrete Math, Linear Algebra

Technical Skills

- Languages: Proficient in Java and Python (5 years). Familiar with C++, JavaScript, Dart, Arduino, SQL, HTML
- Frameworks: Flutter, OpenCV, Flask, React, Firebase, JavaFX, Discord.py, Chrome Extensions, JUnit, Android

Experience

Cornell Space Systems Design Studio: Alpha CubeSat Software Engineer (Fall 2022 - Present)

- Developing ground station software to communicate with solar powered light sail in Low Earth Orbit
- Converting ground station backend from Clojure to the Python Flask framework to improve maintainability
- Utilizing Elasticsearch and Kibana to create dashboards for viewing mission critical satellite data

CognoTrain, Inc: Software Engineering Intern (Summer 2022)

- Published personalized app with various memory games to improve memory of Alzheimer's patients over time
- Utilized Flutter to build an accessible multi-platform app on Apple and Google Play stores
- Designed UI for home page + memory games/activities
- Integrated backend user data and login with app using APIs to ensure seamless/secure user experience
- Created fundraising pitch decks, demo videos, and website as part of founding team

Aspiring Scholars Directed Research Program (ASDRP): CognoTrain CS Researcher (2021-2022)

- Pioneered patent pending cognitive training app with advisor to mitigate the symptoms of Alzheimer's disease
- Evaluated feasibility through research into existing cognitive training solutions and patient needs
- Produced comprehensive project reports & code documentation, presented to 300+ people at colloquia

First Tech Challenge Robotics Team #7303: Robot Automation Lead (2019-2022)

- Winning team at the 2021 Maryland Tech Invitational out of the top 32 teams in the world, won Control Award for most innovative software
- Collaborated with team to implement and rapidly iterate over OpenCV object-detection and odometry localization algorithms, automated state machines & PIDF control loops
- Created custom simulator in JavaFX to plan out robot paths and replay robot actions to troubleshoot issues
- Contributed to live dashboard to track robot position and important state variables

Programming Projects

- Rubik's Cube Solving Robot, Arduino powered robot optimized to solve a Rubik's Cube in 3-4 seconds
- Windows-iOS Clipboard (Python, Firebase), universal clipboard to copy/paste text between different operating systems, uses Firebase backend to create a public API for Python/iOS client to call
- Infinite Campus Grades++ (JS, HTML), Chrome extension to revamp high school grades UI (1K+ users)
- Breadboard Simulator (Python), 2020 Silicon Valley Hackathon: Best Beginner Hack (out of 60 projects)