

# JONATHAN MA

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Java | Python | Robotics | App Dev | Automation | 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, Arduino, Dart, SQL, HTML
- Frameworks: OpenCV, Flask, React, Flutter, Firebase, JavaFX, Discord.py, Chrome Extensions, JUnit

## Experience

**Cornell Space Systems Design Studio: Alpha CubeSat Software Engineer**

*Oct 2022 - Present*

- Developing full-stack ground station software to communicate with solar powered light sail in Low Earth Orbit
- Converting backend from Clojure to Flask (Python) to improve maintainability, achieving 40% code reduction
- Building initiative UI for CubeSat control using React and Bootstrap
- Utilizing Elasticsearch and Kibana to create dashboards for viewing mission critical satellite data

**CognoTrain, Inc: Software Engineering Intern**

*June 2022 - Aug 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 responsive UI for home page and 5+ memory games/activities
- Integrated backend user data and login with app using APIs to ensure seamless + secure user experience

**First Tech Challenge Robotics Team #7303: Robot Automation Lead**

*Aug 2019 - June 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 control + automation algorithms
- Collaborated with team to implement and rapidly iterate over OpenCV object-detection pipelines, odometry localization algorithms, finite state machines & PIDF control loops
- Created JavaFX simulator for path planning and replaying robot actions for testing without robot hardware

**Aspiring Scholars Directed Research Program: CognoTrain CS Researcher**

*May 2021 - June 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

## Programming Projects

- [Happiness App](#) (Flask, React), Social journaling app where users can rate how happy they feel each day, view trends, and share them with friends. Created RESTful API using Flask + SQLAlchemy.
- [Rubik's Cube Solving Robot](#), Arduino powered robot optimized to solve a Rubik's Cube in 3-4 seconds
- [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)