Ethan Montgomery Thomas

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Education

Columbia University   Sep. 2022 – Oct. 2024
B.S. in Computer Science   New York, NY
GPA: 4.157/4.0

• Coursework - Artificial Intelligence, Data Structures, Algorithms, Databases, Networks, Operating Systems, Security, Natural Language Processing

• Organizations - Application Development Initiative (ADI), Tau Beta Pi, Columbia Space Initiative (CSI)

~~• **Application Development Initiative** (ADI) - Organizer of DevFest (annual hackathon), Leader of ADI House~~
~~• **Tau Beta Pi** (The Engineering National Honor Society) - Member of the New York Alpha Chapter~~
~~• **Columbia Space Initiative** (CSI) - Member of 2022-2023 NASA Micro-g NExT Competition team~~

Experience

Florida Atlantic University   Jun. 2023 – Aug. 2023
Engineering Research Intern   Boca Raton, FL

• Funded by the **National Science Foundation (NSF)** Engineering Research Center for Smart Streetscapes (CS3) as a **Research Experiences for Undergraduates (REU)** Intern.

• Tasked with **analyzing and collecting** data from **Electronic Mobility Scooters** in order to **classify riding surface types** (asphalt, concrete, pavers) in real-time for safety and asset management purposes.

• Collected electric scooter mobility data using a custom engineered **Raspberry Pi-based data collection system**, integrating **IMU, GPS, and speed sensors**.

• Developed in a **Linux environment** where **Systemd services** were created and used for **service management**, and a combination of **bash scripts** and **Python programs** using **inter-process communication** libraries were used to enable **system reliability and uptime**.

• Applied **machine learning techniques** using the **Python PyTorch and scikit-learn libraries** to **train a model** used for **classication** and **prediction** of road surface types.

• Successfully classified riding surface types with 90% accuracy and received the **"Most Outstanding Presentation"** award.

Puberry Inc.   Feb. 2023 – Jun. 2023
Software Engineering Intern   New York, NY

• Hired in a startup environment to contribute towards a **cross-platform puberty education application** intended to supplement schools' sex education curriculum.

• Tasked with **developing interactive quizzes and games** in order to assess and reinforce learning, as well as an **interactive calendar** for students to monitor their progress.

• Used the **cross-platform Flutter framework** on the mobile application front-end to implement the design of the application as well as communicate with the **Google Firebase back-end** to implement the functionality and interactivity of the application.

• Implemented data retrieval and storage solutions using **Google Firebase** for storage and authentication.

• Contributed efficiently towards the Puberry demo sprint, allowing our team to meet the deadline that allowed the Puberry application to be presented to schools, and tested on students and teachers, where it resulted in a 61% increase in health test scores and info retention.

Skills

Programming Languages - Python, C, C++, SQL, Javascript, Typescript, Java, OCaml.
Technical Skills - Git, Linux, Docker, Bash, LaTeX, HTML, CSS, Raspberry Pi, Virtual Machines, CLI, UX/UI Design, API.
Libraries & Frameworks - React, NextJS, Node, Flutter, PyTorch, Tensorflow, Selenium, Flask, Godot, PostgreSQL.
Soft Skills - Analytical Problem Solving, Communication, Prototyping, Creative Thinking, Teamwork, Leadership.

Projects

DevFest Hackathon Website   Oct. 2022 – Mar. 2024
🔗 2024.devfestcu.com

• Tasked with leading the Columbia University Application Development Initiative's 2024 DevFest Hackathon website team, after exemplary work on the 2023 DevFest website (2023.devfestcu.com).

• Managed a project worked on by 5 engineers, distributing tasks and ensuring that each member stayed motivated and efficient in our sprint up to the hackathon.

• Utilized Next.js and React to create a website resembling a comic book, creating interactive "page turning" from scratch.

• DevFest recruited over 100 new registrants in 2024 over 2023, in part due to the efficiency of information layout and timeliness of the DevFest website.

Front-End, Back-End, Full-Stack, Cloud, Web Programming, Leadership, Project Management, Next.js, React

OpenAir-VPN

Created a custom Linux VPN front-end for AirVPN provided configuration files, supporting OpenVPN, Wireguard, and a killswitch. Relies on Linux, Bash, and iptables firewall rules.

Linux, System Programming, Shell Scripting

Baseball Analytics Dashboard   Sep. 2021 – May 2022

• Tasked with creating a pitching data dashboard by the Georgetown University Baseball Analytics club for use by the Georgetown baseball team.

• Developed a web UI using React that interacted with the R Plumber REST API to display pitches overlaid over a strike zone grid.

• Allowed players and coaches to visualize pitching data in an interactive way, being able to filter by players and pitch type.

React, R, API, RESTful

TODO

Projects

- Add more? (Any open source contributions? Anything to highlight that's not highlighting in my other projects? Pitch Wizard? Class projects (Kernel Scheduler, C web server, NLP, Databases project)?)

- Add STAR for OpenAir-VPN, and also add a license to it on Github so I can claim its an open source contribution.

Skills

- Clean up/organize skills.

Education

- Clean up/organize education

- Add Dean's List?

- Probably remove club descriptions and such.

Reword star bullet points and such.

Run everything through bugfreeai