Madison Ramos

+1 (516) 301-7124 | maddie@caltech.edu | in madisonramos | ⓞ maddikia

Education

California Institute of Technology (Caltech) | Jun 2024

B.S. in Computer Science | **3.7**/4.0 GPA

- **Related Coursework**: Software Engineering, Machine Learning & Data Mining, Data Structures, Software Design, Algorithms, Applied Data Analysis, Linear Algebra, Operating Systems, Programming Languages, Compilers

Work Experience

Microsoft | Jun 2023 – Sept 2023

Software Engineer Intern (Search Extensibility Team) | Redmond, WA

- Developed four diagnostic cmdlets for internal Elasticsearch APIs to improve escalation handling efficiency
- Extended REST API endpoint with Google Protobuf data models and custom handlers to achieve full API coverage–from 2 to all 4 major search schema realization APIs–and add support for requesting diagnostic information

Microsoft | Jun 2022 – Sept 2022

Explore Intern (Workload Management Team) | Redmond, WA

- Engineered database resource utilization dashboards to enable data-driven decisions for load balancing and drive proactive interventions on Exchange servers; achieved a 75+% increase in real-time visibility from prior visualizations
- Refactored resource monitors in C# to eliminate redundant server instances and reduce costs

Microsoft | Jun 2021 – Aug 2021

New Technologist Intern | Remote

- Built 15-page web-app prototype for AidPals, a crowdfunding meets mutual aid platform, using React.js and Firebase
- Designed 15+ prototype screens and conducted user research through interviews, usability tests, and surveys

Correlation One | Apr 2021 – Aug 2021

Data Science (DS4A) Fellow, Project Lead | Capstone Spotlight (3rd Place out of 150+) | Remote

- Graduated with honors from highly selective 13-week fellowship focused on data fluency in Python and SQL
- Led team of 4 to analyze artist similarity for Universal Music Group, leveraging Twitter API and Google BigQuery to extract, clean, and analyze overlap between Twitter follower data for 167 artists with up to 100k followers

Teaching Experience

Head Teaching Assistant | Caltech | Fall 2022, Fall 2023

- Managed a team of 20 course staff supporting 150+ students for CS 1, an introductory Python course
- **Previously:** Student Instructor (Algorithmic Bias, Spring 2022) ● Teaching Assistant (CS 1, Fall 2021)

Projects

More projects and code at github.com/maddikia

Spreadsheet Engine | Python, Lark Parser | Mar 2023

- Developed a spreadsheet calculation engine in Python in a team of three for CS 130: Software Engineering

Tunnels (Dungeon Crawler) & Physics Engine | C, SDL Library | May 2021

- Co-developed a physics engine and 15-level dungeon crawler with procedural variation and multiple enemy/boss types
- Engineered experience and interaction-based leveling systems with 5 rotating power-ups to enable player progression

Skills

Technical Languages: Python, C, Java, C#, JavaScript, OCaml, C++, MATLAB, R, SQL, HTML/CSS
Frameworks, Tools, & Libraries: pandas, NumPy, Matplotlib, scikit-learn, d3.js, React, Git/Version Control

Awards

1st Place at MIT Mystery Hunt out of 250 teams | MIT | Jan 2023
3rd Place Data Science for All (DS4A) Capstone out of 150+ projects | Correlation One | Sept 2021
Jane Street Endowed Scholar ($<$2% of DS4A fellows) | Jane Street | Jul 2021
Design for America Award & Scott Krulcik Grand Prize Finalist (Top 6) out of 52 projects | TartanHacks | Mar 2021
1st Place in Hacking Systemic Inequalities ($5000) out of 4600+ participants | Finastra (Hack to the Future) | Dec 2020