

# Joseph M. MacDougall

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## Education

### University of Pennsylvania

*B.S.E. in Computer Science (GPA: 3.94 | Major GPA: 3.96)*

- Minor(s): Mathematics; Data Science & Analytics; Psychology
- Involvement: Alpha Phi Omega Service Fraternity – Elected president of the Beta Pi Class (2024)

Aug 2023 – May 2027  
Philadelphia, PA

## Experience

### Returning SWE Intern

*Switchboard, MD*

- Building a PBX server with Asterisk to support voice-to-voice AI and integrating real-time call transcription using AWS Chime SDK and Nova Sonic.

May 2025 – Present  
Remote

### Teaching Assistant

*CIS 1210: Data Structures and Algorithms*

- Conduct weekly recitations, record review guides, hold office hours, grade assignments, and develop course materials.
- Appointed to the Written Homework Committee.

Jan. 2024 – Present  
Philadelphia, PA

### Android Engineer

*PennLabs*

- Maintain and develop University of Pennsylvania mobile apps (100k+ users).
- Served as a project mentor to onboard new developers (Fall 2024 onboard cohort).
- Launched a subletting marketplace using Google Maps API (Spring–Fall 2024).
- Created a mobile homepage feature for group study room booking (Spring 2024).

Jan. 2024 – Present  
Philadelphia, PA

### Autonomous Vehicle Engineer

*xLab: Safe Autonomous Systems Lab*

- Developed lane detection software for F1Eighteenth (1/18th scale autonomous car).

Sept. 2024 – Feb. 2025  
Philadelphia, PA

### SWE Intern

*Switchboard, MD*

- Led development of two healthcare SaaS web applications.
- Built the **MDAware Demo App** to showcase patient message classification models at expos and conferences.
- Created the **MDAware Pilot Assessment App**, a data-visualization tool for client hospital datasets.

May 2024 – Aug. 2024  
Remote

### Mobile Developer & Researcher

*NEMOS Lab at the Colorado School of Mines*

- Developed an Android biometrics app for fraud/theft detection using SVM models.
- Ported the application to iOS in Xcode.

May 2022 – Aug. 2022  
Golden, CO

## Technical Skills, Language Skills, and Interests

**Web Dev:** React, Typescript, Javascript, Node.js, GraphQL

**Mobile Dev:** Android Studio, Xcode, Java, Kotlin, Swift

**AWS:** Amplify, Chime SDK, Cognito, Lambda, EC2, Nova Sonic

**Data Science:** Python, SQL, Pandas, Polars, TensorFlow, ML in Embedded Systems, OpenCV, MATLAB

**Other Languages & Tools:** Git, C, OCaml, Asterisk

**Spoken Languages:** English (Native), Spanish (Professional Working Proficiency)

## Leadership, Awards, & Certifications

**Morehead-Cain Scholarship:** Finalist (2023)

**Lockheed CodeQuest:** 1st & 2nd place, Rocky Mountain region (2022, 2023)

**HPE CodeWars:** 2nd & 4th place, Rocky Mountain region (2022, 2023)

**American Computer Science League:** Three-time qualifier for international finals

**The Colorado Governor's School:** Board member, graduate, and newsletter contributor

**Club Director (past):** American Computer Science League, Competitive Math, Amnesty International, and Helping our People Eat