

Joseph M. MacDougall

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Education

University of Pennsylvania

M.S.E. Computer & Information Science (Submatriculant, GPA: 4.0)

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

- Minors: Mathematics; Data Science & Analytics; Psychology
- Alpha Phi Omega Service Fraternity (Elected President of Beta Pi class)

Philadelphia, PA

Aug 2025 – May 2027

Aug 2023 – May 2027

Experience

Software Engineering Intern – Voice AI Platform

May 2025 – Aug 2025

Switchboard, MD

Remote

- Developed a real-time voice-to-voice AI platform for patient calls—enabling live transcription, smart call routing, and automated transfers to improve care-team responsiveness.
- Consolidated STT/LLM/TTS pipeline into Amazon Nova Sonic, cutting inference costs by 70%.
- Improved urgent call routing reliability, reducing missed urgent transfers.
- Enabled transcript persistence across transfers, cutting call time by eliminating repeat questions.

Teaching Assistant

Jan 2025 – Present

CIS 1210: Data Structures and Algorithms

Philadelphia, PA

- Conduct weekly recitations of 20+ students, record review guides, hold office hours, grade assignments, and develop course materials.

Android Engineer

Jan 2024 – Present

PennLabs

Philadelphia, PA

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

Software Engineering Intern – Web Applications

May 2024 – Aug 2024

Switchboard, MD

Remote

- Led development of two healthcare SaaS web applications.
- Built and deployed the **MDAware Demo App** to showcase patient message classification models to clients—used in a Google Ventures pitch and helped drive two contract expansions (\approx \$400k ARR pipeline) in its first month.
- Created the **MDAware Pilot Assessment App**, a data-visualization tool for client hospital datasets.

Autonomous Vehicle Engineer

Sept 2024 – Feb 2025

xLab: Safe Autonomous Systems Lab

Philadelphia, PA

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

Mobile Developer & Researcher

May 2022 – Aug 2022

NEMOS Lab at the Colorado School of Mines

Golden, CO

- Developed an Android biometrics app for fraud/theft detection using SVM models.

Skills

Languages: Java, JavaScript, TypeScript, C, Python, Kotlin, Swift, OCaml, SQL

Web & Backend: React, Node.js, GraphQL

Data & ML: TensorFlow, Pandas, Polars, OpenCV

Cloud & Systems: AWS (Amplify, Cognito, Lambda, EC2, Chime SDK, Bedrock), Linux

Tools: Git, Android Studio, Xcode

Spoken Languages: English (Native), Spanish (Professional)

Leadership & Awards

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

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

Morehead-Cain Scholarship: Finalist (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