

Ashwin Talwalkar

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EDUCATION

University of Wisconsin-Madison

Madison, WI

Bachelor of Science in Computer Science

September 2022 – December 2025

Dean's List 1st and 2nd Years

Relevant Coursework: Linear Algebra, Calculus I and II, Discrete Mathematics, Data Structures (Java), Programming I, II, and III (Java), Data Science I (Python), Building User Interfaces (JavaScript), Machine Organization (C), Algorithms, Computer Engineering I

PROFESSIONAL EXPERIENCE

Software Engineer Intern

Palo Alto, CA

Plume Design Inc

June 2023 – September 2023

- Established a data collection pipeline to build a Hidden Markov Model within a Plume Labs team.
- Constructed Python programs for Raspberry Pis and other hardware, utilizing multithreading to enhance data acquisition, encompassing MQTT message handling and Bluetooth Low Energy data processing.
- Employed AWS and Apache Flink to perform real-time analysis, processing, and transformation of training and ground truth data.
- Produced data visualization platforms to fulfill debugging and visualization requirements. Participated in code reviews under the guidance of senior developers, learning best practices and receiving feedback on code quality, readability, and efficiency.

EXTRACURRICULARS

Software Engineer

Madison, WI

Data Science For Sustainable Development

September 2022 - Present

- Contributed to software projects aligned with Sustainable Development Goals (SDGs) in collaboration with global non-profit organizations.
- Developed a React web-based statistical calculator for RENEW Wisconsin, supporting the promotion of EV bus adoption. Drove program state structure and integrated Firebase for backend storage and authentication.
- Assembled web based frontend in Hugo for Nagoya USARD, a dataset visualization platform for the QuaRCS-lab Network. Also embedded Python for running data science processes on the data presented on the frontend.

PROJECTS

Hiro | *React Native, Typescript, Express, Firebase, AWS, Arduino C, ESP 32*

June 2023 – Present

- Developed Hiro, a full stack real-time smart home management mobile app, using React Native and Expo. Successfully launching on the Apple iOS App Store.
- Engineered a backend API with TypeScript, Express, and Firebase for efficient data collection and real-time updates.
- Designed and implemented autonomous software for Arduino and Raspberry Pi, powering smart picture frames, lights, and mirrors. Established seamless device-backend communication via AWS IoT Core and MQTT.
- Integrated a DialogFlow-powered AI chat/voice bot into the frontend, enhancing user interaction.

Spartan Assistant | *React, Firebase, Flask*

December 2021 – August 2022

- Led the full stack development of Spartan Assistant. Used web development to create a React-based frontend app enhancing on-boarding for incoming freshmen at Mountain View High School. Leveraged Firebase and a flask server for persistent data storage. Engineered a Flask based API to manage day to day scheduling functionality.
- Utilized feedback from school staff, students, and mentors to gather insights. Implemented features like an interactive map, FAQs, integration of 150+ geoJSON locations, room routing, and class schedule tools.
- Successfully launched and maintained the app, attracting a peak of 774+ distinct daily active users.

TECHNICAL SKILLS

Languages: Java, Python, JavaScript, TypeScript, JavaScript, HTML/CSS, C

Frameworks: React/React Native, Node.js, Flask, Apache Maven, Arduino

Developer Tools/Other: Git/Github, Amazon Web Services, Google Cloud Platform, VS Code, Redis, Apache Avro, Apache Flink, DialogFlow, REST API, Docker, Linux