

Aren Desai

<https://arendesai.com> • github.com/ArenKDesai

Education

University of Wisconsin – Madison

Madison, WI

Computer Science & Data Science BS. Google Developer Student, dotData, Robotics, and Badminton club member. Spring 2025

Technical Skills

Programming Languages: Python, SQL, R, Java, C, Matlab, Julia, Javascript

Graphics & Robotics: OpenGL, WebGL, Unity, Blender, Gazebo, Rviz, ROS/ROS2

Data Science Libraries: Pandas, NumPy, Matplotlib, Seaborn, Scikit-Learn, SciPy, PyTorch, TensorFlow, Keras

Technologies/Frameworks: MySQL, Hadoop, Cassandra (CQL), Kafka, Docker, ArcGIS, PowerBI, Django

Experience

Madison Gas & Electric

Madison, WI

Energy Supply and Trading Intern

May 2024 – Present

- Revamped the outdated hourly dispatch simulator with **Scikit-Learn optimization routine's GPU-optimized algorithms** and **NumPy matrix multiplications**, speeding up the runtime by **97.3%**
- Built a **Microsoft Power Apps** frontend in Python for the hourly dispatch simulator with **Flask**
- Evolved LMP forecasting algorithm with a **3-dimensional CNN** with **Tensorflow**, decreasing MSE by **7%**

Compeer Financial

Sun Prairie, WI

Data Analytics Intern

Jan 2023 – Jan 2024

- Queried agricultural field & loan data in **SQL**, organized in **Python & R** for **quantitative analysis**.
- Explored implementation of **K-NN grouping** of RAU vs average loans and GPT-3 Gen-AI on Compeer data.
- Facilitated the introduction of **PyTorch** and **Microsoft Azure** into the data warehouse.

Personal Projects

AI Assistant (<https://github.com/ArenKDesai/AIAssistant>) | Python, GPT-API, OpenAI-Whisper

Mar 2024

- Developed real-time **speech processing** with **OpenAI Whisper** into regex-based command detection
- Stylized AI personality with **GPT API** personality prompting and real-time **ElevenLabs** voice creation
- Prototyped hand-detection for AI and music control with **Google's mediapipe**

WRoverSoftware (<https://github.com/WisconsinRobotics/WRoverSoftware>) | ROS2, CAN, VESC, Python, C++

Dec 2024

- Modeled robotic arm movement in **Rviz** and **Gazebo** using **RelaxedIK** for smooth and realistic motion planning.
- Implemented a **ROS2 node** for formatting, compiling, and transmitting **CAN** messages to motor controllers.
- Built a **ROS2 node** to process controller inputs and convert them into actionable CAN messages for precise motor control.

Leadership Experience

Google Developer Student Club

Madison, WI

Finance Lead / Treasurer

Sep 2023 – May 2024

- Managed the GDSC bank account withdrawals and deposits.
- Planned GDSC meetings, tech-talks, and workshops with the GDSC core team, including Cheesehacks.

Wisconsin Robotics Club

Madison, WI

Arm Software Coordinator

Sep 2024 – May 2025

- Led the development and coordination of the ROS2 core codebase for the robotics arm.
- Set up initial motor control for swerve motors, ensuring smooth and precise functionality.
- Contributed to content creation for the SAR video presented at the summer robotics competition in Utah.