

Kushal Rao

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EDUCATION

University of Wisconsin-Madison

Computer Science & Electrical Engineering | **GPA:** 3.9 | Dean's List

Madison, WI

May '28

Coursework: Data Structures & Algorithms, Discrete Math, Linear Algebra, Statistics, Artificial Neural Networks, Signal Analysis

Sunset High School

International Baccalaureate Diploma | **GPA:** 4.42/4

Portland, OR

May '24

Coursework: HL - Math Analysis & Approach, English Language & Lit, Biology; SL - Anthropology, Spanish, Global Politics

SKILLS

Languages & Databases: Java, Python, C++, C, JavaScript, TypeScript, CSS, Matlab, Julia, Verilog, Go

Frameworks & Libraries: FastAPI, Flask, Next.js, React, PyTorch, Pandas, JACC.jl, Gradio, MathJax, Expo Go, TensorFlow

Developer Tools & Platforms: Linux, GitHub, AWS, EC2, S3, Elastic Beanstalk, Docker, REST APIs, Figma, WebSockets

EXTRACURRICULARS

International Collegiate Programming Contest (ICPC) – Team Member

Madison, WI

- Placed 11th out of ~ 80 regional teams, solving 8 of 11 problems, using C++, Algorithms and Data Structures

Nov. '25

EXPERIENCE

IBM Internship

Back End Developer Internship

Rochester, MN

Incoming Summer 2026

Undergraduate Research Assistant

Jexpresso developer - Applied and Computational Mathematics, Department of Mathematics

Madison, WI

Feb. '25 - Present

- Drafting a manuscript for the Journal of Open Source Software (JOSS) evaluating the implementation of JACC.jl
- Co-authored a paper detailing Jexpresso's 3D adaptive mesh refinement and cloud microphysics capabilities, presented at the American Meteorological Society conference
- Worked on decreasing CPU & GPU runtime by 75% and GPU runtime by 80% by running Discontinuous Galerkin simulations efficiently by adapting a Julia script to run with JACC.jl on multiple GPU's, to render atmospheric conditions

Undergraduate Teaching Assistant

ECE 252 – Introduction to Computer Engineering

Madison, WI

Jan. '26 - Present

- Collaborated with another TA to host sections teaching 50 students the basics of adders, LC-3 instructions and assembly
- Hosted office hours for students to drop in and ask questions about homework, learning objectives or preparation for exams

Badger Consulting

Project Manager

Madison, WI

Dec. '24 - Present

- Restructured the financial framework for handling Madison-area EMS requests, eliminating administrative delays by ~20%
- Led a 10-person team to revamp the customer experience for a sportswear retailer, driving in-store traffic via online marketing and partnering with the University of Wisconsin Madison to target students.

PoleShift Internship

Frontend Developer

Portland, OR

May '25 – Aug. '25

- Developed a Next.js application with HTML and CSS to rank politicians in national, state, and local offices
- Initiated an Expo Go program to add mobile functionality with GIS to map users to their elected representatives

PROJECTS

Personal Hardware Project | MiniTPU

Sept. '25- Oct. '25

- Designed and simulated a 4x4 systolic array matrix-multiplication accelerator in Verilog, by building parameterized multiply-accumulate (MAC) units, applying control logic to enable pipelined dataflow computation
- Verified design correctness through behavioral testbenches and waveform analysis using EDA Playground and GTKWave

Full-Stack Gemini API Project | Research Dashboard

Jul. '25- Aug. '25

- Used Python, FastAPI/Flask, Next.js, and AWS Elastic Beanstalk, EC2 & S3 to create a web app to list latest research papers
- Added AI chat functionality with Gemini API to make the query user-friendly & cutting research and analysis time in half

NBA Award Prediction Model

Apr. '25- May '25

- Used PyTorch and Pandas to scrape basketball data from an API to create training data to learn patterns in MVP, DPOY & ROTY based on 1951-2017 seasons to predict award winners between the 2018 and 2025 season with around 60% accuracy

INTERESTS

- Reading, Wisconsin Club Tennis, Indian Cultural Festivities, NFL, PDX Trail Blazers, Basketball, Running, Crosswords