Vedant Ladha

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Education

University of Wisconsin, Madison Madison, WI
Bachelor of Science in Computer Science, Minor in Entrepreneurship GPA: 3.4 *Expected May 2026*

- **Relevant Coursework:** Advanced Data Structures & Object Oriented Programming, Machine Learning, Database Systems, Algorithms, Data Visualization, Linear Algebra, Calculus, Project Management, Microeconomics

Work Experience

UW Tech Exploration Lab Sep 2025 - Present
Venture Build Fellow *Madison, WI*

- Launched Spectra, a cloud-native platform that detects and forecasts emerging social trends across major networks, empowering marketers with real-time viral intelligence
- Built scalable ingestion and analytics pipelines on AWS powering ML models for spike detection, HDBSCAN topic clustering, and lifecycle forecasting, achieving achieved **62%** precision on top-k trend predictions, **< 24 h detection latency**, and **2% API error rate**
- Led end-to-end system design, CI/CD, and observability (FastAPI, Next.js, CloudWatch, OpenTelemetry) while collaborating in Agile sprints with Wisconsin School of Business MBAs to translate validated user insights into technical milestones and commercialization goals

Birlasoft Limited June 2024 - Sep 2024
Software Engineering Intern *Remote*

- Architectured a live coding platform using Node.js, Express.js, and JavaScript, supporting real-time collaboration for **500+** users, increasing coding efficiency by **75%**
- Implemented JWT-based authentication, enhancing security and reducing breaches by **90%**
- Integrated MongoDB (via Mongoose) and SQL databases, efficiently managing **3,000+** code snippets and tested the same using Postman. Optimized Express.js routers and middleware, improving server response times by **35%** for a seamless live coding experience

UW-Madison, Department of Computer Science Aug 2023 - Dec 2023
Peer Mentor *Madison, WI*

- Held in-person office hours to assist **˜850** students with their assignments and moderated discussions on Piazza
- Conducted review sessions, clarifying advanced Java concepts like recursion, data structures, and file I/O, improving student performance by **10%** on average in assignments and exams

Projects

Cache-Sim

- Optimized a low-level C system to simulate interrupt-driven Ł1/L2 cache management, processing **100K+** memory operations
- Reduced cache miss rates by **25%** using LRU and FIFO eviction policies with dynamic cache resizing
- Improved I/O efficiency by **40%** through interrupt handling for asynchronous cache misses with disk I/O
- Enabled multi-threaded memory access with concurrency management, supporting 8+ threads using mutexes

Health Tracker

- Developed a machine learning pipeline in Python to predict health outcomes using user-input data, achieving a balanced **75%** F1 score
- Designed a decision tree-based system that suggested tailored lifestyle improvements by analyzing user data; the system achieved a processing speed of **0.5** seconds per query while enhancing overall user satisfaction metrics
- Used a dataset of **5,000+** entries, incorporating feature engineering to enhance model accuracy and relevance
- Deployed the model via Flask API, supporting real-time predictions with response times under **800ms**

Skill Forage

- Engineered a MERN stack platform to connect learners with mentors, supporting 1,000+ active users
- Constructed a real-time chat system using WebSocket, reducing message latency by **35%** for seamless interactions
- Implemented a recommendation engine using collaborative filtering to match users with mentors, increasing engagement by **40%** and achieved **98%** uptime with scalable deployment on AWS and secure user authentication via OAuth 2.0

Technical Skills

Languages: Java, C++, Python, JavaScript, HTML5/CSS3, R, LaTex
Developer Tools and Platforms: Linux, Vim, Emacs, Git Version Control, Valgrind, GDB, Docker, Kubernetes, PostgresSQL, pgvector, Google Cloud, Postman, WebSockets, MongoDB
Web/ App Development: React.js, Node.js, Express.js, Next.js, TailwindCSS, FastAPI