Vani Agarwal

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Software engineer building research.site: evaluating deep research APIs from OpenAI, Perplexity, Gemini, & Parallel.

Education

University of Washington — Seattle, WA
Bachelor of Science in Informatics; Bachelor of Arts in Mathematics — *Jun. 2026*
Relevant Coursework: Data Structures & Algorithms, Database Management, Cybersecurity, Linear Optimization

Experience

Software Engineer — Present
Microsoft AI — *Seattle WA*
– Collaborating with Microsoft AI team to identify & scope monetization opportunities for AI products.

Founder — Oct. 2025 – Present
Deep Research Arena (research.site) — *Remote*
– Built developer platform comparing **8** deep research API providers across **10**+ evaluation metrics (latency, cost, citation quality).
– Implemented side-by-side model runner executing long-running research jobs with real-time output comparison across providers.
– Designed blind voting, cost tracking, API key management, & usage analytics with PostgreSQL backend via Supabase.
– Shipped auth flows, mobile-responsive UI, & shareable comparison links using Next.js, TypeScript, & Supabase.

Backend Engineering Intern — Jun. 2025 – Aug. 2025
UPS Supply Chain Solutions — *Atlanta, GA*
– Engineered document management module integrating **3** data sources via REST APIs, enabling retrieval of **1,000**+ daily PDFs.
– Presented architecture proposal to engineering leadership for adoption into existing enterprise logistics workflows.
– Implemented JWT-based authentication to standardize access control across **5**+ internal microservices.
– Diagnosed & resolved API integration issues using C#/.NET & Postman, reducing data inconsistencies during QA.

Software Engineering Intern — Jan. 2025 – Apr. 2025
Societal — Platform serving 15 Arizona counties, Arizona Supreme Court, & 4 Ohio counties — *Seattle, WA*
– Built OCR-LLM pipeline combining Mistral AI & PaddleOCR to parse bank statements & checks with **85%**+ accuracy.
– Built extraction pipeline supporting court oversight of **$50B**+ in guardianship assets across **19**+ jurisdictions.
– Applied OpenCV preprocessing & regex-based post-processing to enhance text detection & table reconstruction.
– Standardized extracted data into unified financial schema enabling automated court submissions.

Instructor + Lead Teaching Assistant — Mar. 2024 – Present
University of Washington — *Seattle, WA*
– Completed **9** consecutive quarters in CSE 373, Data Structures & Algorithms, supporting **1,400**+ students total.
– Led & coordinated teams of **12**–**15** TAs per quarter, managing grading workflows, schedules, & quality control.
– Incoming Summer 2026 Instructor, responsible for full course delivery including lectures & assessments to **100**+ students.

Technical Projects

Education Inequality in the U.S. | *JavaScript, R, Vega-Lite, ObservableHQ*
– Developed interactive dashboard analyzing education spending & literacy disparities across **42** U.S. states.
– Optimized visualization performance for **500K**+ data entries, improving render speed & responsiveness.

Geospatial Food Access Analysis | *Python, GeoPandas, Folium, Pandas*
– Analyzed USDA & Census data to identify low-income, low-access food deserts across Washington State.
– Built data pipeline merging census shapefiles with tabular food access data for **39** counties.

REX | *React, TypeScript, Supabase, PostgreSQL*
– Designed social recommendations platform enabling users to discover products in personalized group feeds.
– Structured PostgreSQL schema for scalable user, group, & product data storage with Supabase Auth.

Technical Skills

Languages: Java, Python, JavaScript/TypeScript, SQL, C#/.NET
Frameworks & Tools: React, Next.js, Node.js, ASP.NET Core, Angular, Git, Docker, Postman, Azure DevOps, Vercel, CI/CD
Databases: PostgreSQL, Supabase, Firebase, SQL Server
Data: Pandas, NumPy, scikit-learn, GeoPandas, Folium