MANASWI KULKARNI

📞 +1-774-525-6626   ✉ mkulkarni1@wpi.edu   in LinkedIn

SUMMARY

Computer Science Master's student at WPI with expertise in Full Stack Development and AI-driven systems. Proven track record of architecting scalable REST APIs, optimizing cloud infrastructure, and implementing ML pipelines to solve complex engineering challenges. Passionate about building robust, user-centric applications using React, Node.js, and Python.

EDUCATION

Worcester Polytechnic Institute (WPI)   **Aug 2024 – May 2026**
Master of Science in Computer Science

Jawaharlal Nehru Engineering College (JNEC)   **June 2020 – July 2024**
Bachelor of Technology in Computer Science and Engineering with Honors in Artificial Intelligence

PROFESSIONAL EXPERIENCES

Research Assistant – WPI | Worcester, MA   **Jan 2026 – Present**
- Developing an interactive GIS visualization dashboard using React and Python to render high-density transit data for urban mobility redesigns.
- Implementing geospatial data processing and graph-based optimization algorithms to simulate real-time route efficiency for city planning stakeholders.
- Architecting scalable backend services to handle large-scale spatial datasets, ensuring low-latency rendering for complex data overlays.

Full Stack Developer – Gridify | Boston, MA   **Sep 2025 – Dec 2025**
- Led the technical migration of e-signing infrastructure from DocuSign to BoldSign, optimizing operational costs and system workflow efficiency.
- Engineered a local dev-stack using Docker and Supabase, eliminating manual configuration and accelerating onboarding cycles.
- Integrated Playwright for automated E2E testing to ensure deployment reliability and reduce production bugs.

Machine Learning Engineer – NuVant Systems (A3 Global) | Boston, MA   **May 2025 – Aug 2025**
- Engineered a ML pipeline that reduced battery analysis time from 3 hours to 2 minutes, achieving a 99% efficiency gain.
- Built a real-time hardware monitoring suite using NI-VISA protocols to visualize anomaly detection metrics from custom testing equipment.
- Designed a modular configuration system to ensure cross-hardware compatibility, allowing the software to support diverse battery types without code changes.

Full Stack Developer – Atlas Copco Group| Pune, India   **Jan 2024 – June 2024**
- Designed REST APIs and Spark-based ETL pipelines using Parquet, achieving a 30% reduction in data storage costs.
- Developed real-time React dashboards to automate data ingestion and provide instant visibility into distributed manufacturing telemetry.
- Deployed automated CI/CD pipelines to streamline the transition from data analysis to production-ready UI.

Research Development Software Engineer - ApTSi | Massachusetts, US   **Jan 2022 – Dec 2023**
- Optimized legacy web platforms using Angular and Node.js, resulting in a 20% increase in system performance and user engagement.
- Managed SQL database migrations and executed tech-stack modernization strategies based on comprehensive market research to drive system efficiency.
- Collaborated on UI/UX redesigns for client-facing portals, streamlining API calls to reduce user interaction time.

ACADEMIC PROJECTS

SyncQues – AI-Powered Q&A Platform (Startup Prototype)   **June 2025 – Present**
- Architected a scalable backend for a pre-launch startup using GraphQL (Apollo) and MongoDB, engineering the schema to handle simulated loads of 10k+ users with less than 100ms latency.
- Built an asynchronous AI answer engine using Celery task queues and Redis, enabling the system to process 500+ requests/minute without blocking user UI threads.
- Secured the ecosystem using RBAC and OAuth 2.0 while optimizing AWS (EC2/Lambda/S3) infrastructure, reducing API response times by 30% through strategic caching and database indexing.

BigDocBot – LLM-Powered Code Summarization & Static Analysis Tool   **March 2025 – May 2025**
- Implemented a code summarization tool using LangChain, CodeBERT, and CodeT5 to extract function-level summaries, complexity, and readability metrics from Python and JavaScript codebases.
- Constructed AST-based parser to generate line-by-line LLM explanations, improving code maintainability.
- Developed an interactive UI to display summaries, scores, and token-based heatmaps with LLM result caching.

VizBotz – AI-Driven Data Visualization Assistant   **February 2025 – April 2025**
- Created a Streamlit tool that converts uploaded datasets into Altair/Vega-Lite charts with LLM-generated insights.
- Integrated OpenAI and Gemini APIs with a local RAG fallback, supporting offline semantic insight generation and metadata parsing.
- Modularized backend using prompt templating, schema detection, and natural language query handling for dynamic chart editing.

SKILLS

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

Frameworks & Web: React, Next.js, Node.js, FastAPI, Flask, GraphQL, REST APIs

AI & Intelligent Systems: AI-Assisted Coding (LLMs, RAG), MCP Server, LangChain, OpenAI API, CodeBERT

Databases & Storage: PostgreSQL, MongoDB, Supabase, Redis, Parquet, Amazon S3

Cloud & DevOps: AWS (Lambda, EC2), Docker, Kubernetes, CI/CD (Jenkins), Terraform, Bun

Tools & Testing: Playwright, Git, JIRA, Figma, Streamlit, Plotly.js

CERTIFICATIONS
Microsoft Azure AI-900
Microsoft Azure DP-900

LEADERSHIP QUALITIES AND MANAGEMENT

- Recognized for achieving a perfect 5-star rating in operational excellence and stakeholder management while overseeing the Rubin Campus Center as a Building Manager.
- Actively led and participated in key student organizations including the Computer Society of India (CSI), GeeksforGeeks Student Chapter (GFG) and National Social Services (NSS).