Ritvik Mahapatra

rimahapatra7@gmail.com || 412-680-2101 || LinkedIn || GitHub || Portfolio || US Citizen

EDUCATION

University of Maryland – College Park, MD   *December 2026*
Bachelor of Science, Computer Science | Minor: Economics | Dean's List
Relevant Coursework: Machine Learning, Data Structures and Algorithms, Computer Systems, Object Oriented Programming, Organization of Programming Languages, Data Science, Human-Computer Interaction, Linear Algebra, Advanced Statistics
Involvements: App Development Club, BitCamp Hackathon, Campus Coders Crew, Google Student Developer Club, CodePath

SKILLS

Languages: Python, Java, JavaScript, TypeScript, Dart, SQL, C
Frameworks/Tools: FastAPI, Flask, Node.js, Express, LangChain, TensorFlow, PyTorch, React, Next.js, Angular, Flutter, SQLite, PostgreSQL, MongoDB, Vector Databases, Git, Linux, AWS, Docker, Kubernetes, RESTful API, GraphQL, NLP, Pandas, Jest, JUnit
Certifications: IBM Agile Full Stack Developer Certification; Minnodi LLC Computer Vision, NLP, and AI Agent Course

EXPERIENCE

Software Engineering Intern: *SENS Psychology*   *August 2025-Present*
- Engineering a full-stack prototype relationship communication app in **Next.js, Node.js, and PostgreSQL**, delivering ~15+ iterative features (chat, feedback loops, user personalization) to support healthy relationships.
- Integrating large language model (LLM) APIs (chatbot and sentiment analysis modules) into app workflows, enhancing contextual response quality by ~25% and reducing latency by ~40% in simulated evaluations.
- Researching and implementing AI-powered marketing strategies, leveraging algorithms for consumer behavior prediction and blog content generation; projected to boost content efficiency by ~35% and improve engagement through A/B testing.

Software Developer: *Campus Coders Crew*   *August 2025-Present*
- Built a **React+Tailwind**-based website for the BridgeUMD club with ~50 members, implementing reusable components, dynamic routing, and mobile-friendly layouts using **TypeScript** to support event promotion and community engagement
- Developed features for Streamline, a swim meet lineup automation app, using **Svelte** and **Node.js** to speed up race lineup generation, reducing coaches' planning time from hours to minutes across a league of 14,000+ swimmers.

AI/ML Engineer Intern: *Minnodi LLC*   *June 2025-August 2025*
- Designed and deployed a **Dockerized RESTful FastAPI** backend for an AI agent system (**LangChain**, **Browser-Use**, and **Gemini** agents) for a voice assistant that automates 16–50 step workflows across ~20 websites (Amazon, Target, Expedia).
- Structured task planning strategies to dynamically identify and interact with UI elements; tuned agent behaviors for ~30 different task types including flight booking, food ordering, and multi-item cart addition, decreasing average steps by ~25%.
- Implemented a planner and verification agent using **Pydantic** within the assistant's multi-agent architecture to coordinate **Browser Use** and **Gemini** agents, which decreased task completion latency by 30% and reduced average steps by 20%.
- Integrated **ElevenLabs**'s text-to-speech API for real-time voice narration and benchmarking ~10 models to identify the most effective configuration of agents (narration, planning, execution and verification), optimizing task completion speed by 10%.

Full-Stack Developer: *Booz Allen Hamilton – App Dev Club*   *February 2025-May 2025*
- Architected a containerized **Next.js** and **Node.js** application that automates insurance policy auditing using **TypeScript** with a cross-functional team of 10, saving Booz-Allen Hamilton an estimated $50,000.
- Engineered an Optical Character Recognition (OCR) pipeline with **Tesseract-OCR** and **OpenCV**, preprocessing scanned insurance documents and extracting structured data with ~96% accuracy for downstream processing.
- Innovated a scalable, event-driven data processing pipeline using **AWS Lambda, EC2, SQS**, and **S3 buckets**, orchestrating the queuing of 500+ sample policy documents from a **PostgreSQL** database for automated extraction and summarization

Software Development Intern: *STEM-E Youth Development Center*   *January 2024-August 2024*
- Spearheaded development of a note-summarization web application for students using **React.js** and the Gemini API, enabling ~50% text compression and automatically generating quizzes to reinforce comprehension for learners.
- Constructed and refined 10+ high-fidelity **Figma** prototypes in collaboration with fellow interns, transforming user requirements into responsive, accessible UI designs that optimized the note-taking and quiz creation workflow.

PROJECTS

SQuAD QA Analysis | *FAISS, BM25, BERT, GPT, LangChain*   *June 2025*
- Engineered an end-to-end Retrieval-Augmented Generation-based (RAG) question answering pipeline with 90,000+ questions relating to ~500 Wikipedia topics, combining multiple retrieval methods to reach 75% exact match accuracy

ritvik-mahapatra.netlify.app (Portfolio) | *Angular, TypeScript, FastAPI, LangChain, ChromaDB, Tailwind*   *July 2025*
- Built a full-stack portfolio with Angular frontend, FastAPI backend, including a RAG-powered chatbot (trained on resume, experiences, and projects) and VibeMatch music recommender (k-NN on 200+ handpicked songs with Spotify API metadata)