Ritvik Mahapatra

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EDUCATION

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

SKILLS

Languages: Python, Java, JavaScript/TypeScript, C, Dart, SQL, Rust, OCaml
Frameworks/Tools: React, Next.js, Angular, Flutter, Git, Linux, Flask, Express, FastAPI, PostgreSQL, MongoDB, FAISS, AWS, Docker, Kubernetes, RESTful API, GraphQL, Pydantic, Jest, JUnit, Pandas, NumPy, LangChain, TensorFlow, PyTorch, scikit-learn
Certifications: IBM Agile Full Stack Developer Certification; Minnodi LLC – Certificate in Computer Vision, NLP, and AI Agents

EXPERIENCE

Software Engineering Intern: SENS Psychology   **September 2025 – Present**
- Developed a full-stack web application with Next.js, Node.js, TypeScript, and PostgreSQL to deliver relationship communication insights through Typeform-driven quizzes and dynamic data visualization, scaling to 1,000+ projected users
- Built an internal dashboard for front desk staff to manage consultations, replacing legacy spreadsheets with a unified system, developing backend jobs/agents to automate record updates, saving 10+ hours/week in manual data entry.
- Researched and implemented 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.

Technical Project Lead: UMD School of Business – App Dev Club   **September 2025 – Present**
- Led a 15-person cross-functional team to develop a financial planning mobile app with React Native, Flask, and Firebase for UMD's Financial Wellness Center, expected to premiere at Maryland Day to 40,000+ users in modeling savings outcomes.
- Spearheaded development of core Python-based backend services, including Monte Carlo simulation pipelines, side-by-side scenario dashboards, and survey-driven recommendation engines that match students to relevant finance courses.
- Implemented analytics and data instrumentation layers to track decision-making patterns, investment projections, and daily challenge engagement, powering privacy-aware recommendations and boosting financial-literacy engagement by ~25%.

AI/ML Engineer Intern: Minnodi LLC   **June 2025 – August 2025**
- Designed a Dockerized RESTful FastAPI backend for a multi-agent AI voice assistant (LangChain, Browser-Use, and Gemini), automating 16–50 step workflows across 20 websites (Amazon, Target, Expedia) for consumers with disabilities.
- Optimized task planning by tuning Python agent behaviors and refining orchestration logic for 30+ complex task types, cutting average workflow steps by ~25% and reducing task latency by 30%.
- Enhanced multi-agent architecture with Pydantic-based planner/verification agents and ElevenLabs text-to-speech integration, benchmarking 10 models to streamline narration, planning, and execution, improving completion speed by 10%.

Full-Stack Developer: Booz Allen Hamilton – App Dev Club   **February 2025 – May 2025**
- Architected a containerized Next.js app that automates insurance policy auditing, saving $50,000 in development costs.
- Innovated a scalable, event-driven ETL 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
- Engineered Optical Character Recognition (OCR) and Natural Language Processing (NLP) pipelines with Tesseract-OCR, OpenCV, BART, and GLiNER, processing scanned documents and saving 12+ hours/week for auditors.

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, creating designs that optimized note-taking and quiz creation.

PROJECTS

SQuAD QA Analysis | FAISS, BM25, BERT, GPT, LangChain   **August 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.

Personal Portfolio Website | Angular, TypeScript, FastAPI, LangChain, ChromaDB, Tailwind   **July 2025**
- Developed a full-stack portfolio with Angular frontend, FastAPI backend, including a RAG-powered chatbot trained on resume/project data and a VibeMatch music recommender (k-NN on 200+ handpicked songs with Spotify API metadata).

VoiceVilla | React.js, Node.js, AWS Lex, AWS Lambda   **April 2025**
- Designed a React.js voice assistant simulating real-estate agent calls utilizing AWS Lex/Polly with Lambda for chatbot functionality and Zillow API retrieval, enabling ~200k property listings with optimized response times and scalable searches.