

ARNAV AGGARWAL

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EDUCATION

University of Maryland, College Park

Expected Graduation: May 2026

Bachelor of Science in Computer Science, Minor in Mathematics; GPA: 3.91

Relevant coursework: Object Oriented Programming, Data Structures & Algorithms, Computer Systems, Discrete Structures, Organization of Programming Languages, Advanced Algorithms, Data Science, Web Dev with Javascript, Machine Learning, Compilers

Teaching Assistant for Object Oriented Programming & Discrete Structures: supported 700+ students by leading discussions, office hours & review sessions (Aug 2023 - Dec 2024)

EXPERIENCE

Amazon Project Leo (Formerly Kuiper)

Sep 2025 – Present

Full-Stack Software Engineer | FastAPI, React, Leaflet, AWS, DynamoDB

Remote

- Co-built Airport Boundary Generator, a geospatial ML app that converts airport coordinates into airport perimeter shapefiles
- Integrated TensorFlow inference into a FastAPI REST service, structuring the model interface and wiring outputs to the React UI
- Implemented shapefile export and tab-based UI with session persistence backed by DynamoDB/S3 for multi-session user flows

Adobe

June 2025 – Aug 2025

Software Engineering Intern | Kubernetes, Java, Spring Boot, FastAPI, Grafana, Jira

Lehi, Utah

- Developed a Java Spring Boot MCP server to make an agentic AI workflow for migrating projects from Adobe Analytics to Customer Journey Analytics, enabling batch operations and reducing end-to-end migration time by 60%
- Migrated a caption paraphraser from FLAN-T5 to OpenAI, improving conciseness by 2× and reducing response time by 22%
- Refactored the main backend service by reducing 6500 lines of code and authored 3 versions of the system architecture, driving adoption of a unified microservices architecture resolving conflicts across multiple stakeholders
- Led operational readiness by building observability dashboards with Grafana & Prometheus tracking 6 key SLIs, setting up severity-based alerting to Slack, ServiceNow, email and implementing auth & rate-limiting for prod
- Wrote a load-testing script using k6 and a centralized Node/Express report viewer, deploying both in K8s

App Development Club, University of Maryland

Sep 2024 – May 2025

Technical Lead | React Native, Typescript, Expo, PostgreSQL, WebRTC, Google Gemini

College Park, Maryland

- Led a team of 13 in a Scrum-based agile environment owning product and system design to build an iOS app deployed on the App Store, providing essential services to veterans & enabling *Warrior's Legacy Care* to raise \$5M in funding
- Developed and dockerized a Flask backend and set up a CI/CD pipeline to deploy it on AWS EC2 with PostgreSQL on AWS RDS
- Implemented real-time messaging from scratch using Socket.IO, integrating iOS push notifications and video calling using WebRTC
- Implemented a resume upload & analysis pipeline with AI-based job recommendations & feedback on veterans' resumes

HSR.health

June 2024 – Aug 2024

Software Engineering Intern | Python, Docker, DevOps, ArcGIS, Data Analysis

Rockville, Maryland

- Automated extraction, cleaning, & aggregation of 635+ Indian census health/social data tables with BeautifulSoup, Selenium, & Pandas; Used GeoPandas for geocoding this data, increasing geo-spatial data alignment by 52%
- Developed Python functions to calculate health risk indices using Jenks natural breaks for data clustering, & deployed them in a cloud data pipeline built with AWS Lambda, EventBridge, ECR, S3 & the serverless framework
- Integrated a CI/CD pipeline using GitHub actions to dockerize the lambda functions & push docker image to ECR

PROJECTS

Splab | FastAPI, React, Socket.IO, Firebase, Kubernetes, Docker

[Github](#) | [Demo](#) | [App](#)

- Developed a mobile-first full-stack web app as a low-friction solution for collaboratively splitting tabs with friends in real time
- Built a receipt parsing pipeline with a fine-tuned Hugging Face Donut Transformer & benchmarked it against alternative models
- Engineered a RESTful FastAPI backend with Docker and deployed it on Kubernetes (k3s) with Traefik ingress, while hosting the frontend on Firebase, setting up CI/CD pipelines for both via GitHub Actions secured with Tailscale
- Integrated real-time tab updates and online status tracking with WebSockets and Firestore for multi-user collaboration

WebAssist | React, Flask, Javascript, Langchain, Tailwind, Regex

[Github](#) | [Demo](#)

1st place at 2024 Text AI Jam Hackathon by FluensTech (Team of 2)

- Built an AI-powered chrome extension featuring content-summarization, interactive flashcard generation, and a chatbot all dynamically working with the webpage's content along with a multi-highlight functionality
- Implemented a Flask backend API integrating a RAG model using OpenAI for generating embeddings stored in FAISS vector database, alongside a LangChain summarization chain to overcome the LLM's context window limits
- Developed a React front-end incorporating text-to-speech functionality while leveraging Chrome Runtime API to connect content script to client-side and Chrome Storage API to preserve extension's state between user sessions

SKILLS

Languages: Python, JavaScript/TypeScript, HTML/CSS, Java, Ocaml, Matlab, C, Rust, SQL, Bash

Technologies/Tools: Kubernetes, Docker, AWS, Google Cloud Platform (GCP), Spring Boot, FastAPI, Flask, Node/Express, React, React Native, Expo, PostgreSQL, MongoDB, Grafana, Socket.IO, WebRTC, LangChain, Pandas, NumPy, Tailwind, Three.js, Linux

Methodologies: DevOps (CI/CD, IaC), Cloud Computing, Agile (Scrum, Kanban), Version Control (Git)