

ADI ARORA

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EDUCATION

Virginia Tech

Bachelor of Science (BS), Data Science and Economics

August 2024 - May 2028

PROFESSIONAL EXPERIENCE

Marriott International

Software Engineering Intern – Platform Generative AI (Summer 2026)

June 2026 - Present

Bethesda, MD, USA

- Built an **A2A-enabled multi-agent AI platform** from Marriott's Java starter kit, evolving a single-service MCP/RAG prototype into a **coordinator-led runtime with specialist agents, routing rules, gRPC communication, streaming APIs, memory, monitoring, and dashboard controls**.
- Expanded the platform across 5 backend modules and a **React/Vite dashboard**, growing the system from **36 to 250 Java classes** and from **6 to 105 mapped endpoints** across coordinator, analytical, news, mock-agent, and knowledge-layer services.
- Integrated **PostgreSQL/pgvector RAG over 147 hotel inventory files** using **1024-dimensional embeddings**, scoped property retrieval, **top-k search**, and **chunked JSON ingestion** to ground agent responses in **Marriott property data**.
- Added **scalability** and **reliability** features including **A2A agent discovery**, **gRPC with HTTP fallback**, **Redis-backed session memory**, **configurable routing**, **multi-level caching**, **health probes**, **audit logs**, and **performance metrics**.

Lombardi Comprehensive Cancer Center

Research Intern – Data Analytics (Immuno-Oncology)

June 2024 - August 2024

Washington, DC, USA

- Analyzed high-dimensional flow cytometry data to identify immune cell response patterns from **complex datasets**.
- Cleaned and validated experimental data using **Excel** and **Python** to support reproducible **statistical analysis**.
- Presented data-driven findings at weekly research symposiums using **PowerPoint**.
- Collaborated with researchers to **interpret results and recommend next-step analyses** and experiments.

PROJECTS

SmartFolio: Agentic AI Portfolio and Stock Analysis Platform

April 2026 - Present

- Designed and deployed **SmartFolio**, a full-stack investment intelligence platform (**React/TypeScript + FastAPI**) on **Vercel** and **Render** with **Neon Postgres persistence**, **live market data**, and **dual-LLM routing with automatic failover**.
- Built a **7-agent analysis pipeline** (Ticker Intake, Market Data, Forecast, Backtest, Portfolio, Memo Writer, Compliance) where **deterministic code computes every number and an LLM-narrated, compliance-validated layer explains it** — enforced with **regex guardrails** against financial-advice language.
- Integrated **real external systems**: **Plaid** brokerage sync (**REST**, no SDK) for live holdings import, and a **Google A2A-compliant agent card** exposing the platform's skills for **agent-to-agent discovery**.
- Shipped **production infrastructure** — **rate limiting**, **structured request-ID logging**, **Sentry-ready error tracking**, a **30-test CI suite** (pytest + Vitest) gating every **deploy**, and a **replayable analysis-history** system backed by **persisted agent traces**.

Token Optimizer: Adaptive LLM Orchestration and Prompt Optimization Platform

June 2026 - Present

- Designed and deployed **Token Optimizer**, a **provider-agnostic AI workspace** built with **Node.js**, **vanilla JavaScript**, and **Vercel**, supporting **automatic LLM failover**, **SSE-streamed progress**, **request cancellation**, and **provider-reported token and cost tracking**.
- Architected an **eight-module orchestration engine** that moves requests through **secret redaction**, **adaptive route selection**, **prompt construction**, **typed handoff generation**, **provider execution**, **optional verification**, and usage accounting behind a **unified API**.
- Built a **hub-and-spoke agent workflow** where **intake**, **contract**, **execution**, and **verification** stages exchange **compact validated state** instead of full conversation transcripts, while emitting **trace IDs**, **agent actions**, **durations**, **success states**, and **failure details**.
- Implemented **production safeguards** including **Zod validation**, **credential-pattern redaction**, **SSRF protection**, **IP-based rate limiting**, **CSP/HSTS headers**, and **path-safe static serving**, backed by **automated testing across Node.js 20 and 22**.
- Shipped a **reusable Manifest V3 Chrome extension** with **Gemini** and **ChatGPT adapters**, plus an **interactive Graphify code map** that visualizes files, functions, dependencies, and agent information flow across the **open-source system**.

SKILLS

Skills: Python, Git, Docker, Java, RAG, Agentic Systems, MCP, A2A, pgvector, Postgres, Redis, Spring Boot, REST APIs, React.js, MySQL, LLM, Prompt Engineering

PUBLICATIONS

Blood Pressure Variability (BPV): A Novel Diagnostic Biomarker of Multisystem Risk Leveraging Artificial. Jan 2026

Intelligence

MDPI Biomedicines Journal

- *Synthesizing mechanistic evidence and evaluating emerging wearable and AI-based approaches that can lead to continuous BPV monitoring*