

Aditya Pai

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EDUCATION

Master's in Computer Science

Aug 2024 - May 2026

North Carolina State University, Raleigh, NC

GPA: 3.51/4

Courses: Operating Systems, Design & Analysis of Algorithms, Artificial Intelligence, Neural Networks, Deep Learning

Bachelor of Technology in Information Technology, Honors in Artificial Intelligence

Aug 2020 - May 2024

KJ Somaiya College of Engineering, Mumbai, India

GPA: 3.9/4

Courses: Discrete Maths, Data Structures, Natural Language Processing, Theory Of Computation, Network Security

PROFESSIONAL EXPERIENCE

NC State University: Research Assistant

Jun 2025 - Present

- Pioneered a self-healing data ingestion pipeline in Python using Selenium, Pywin32 API to autonomously update and verify a compound repository of 2,500+ entries.
- Crafted a GenAI-powered chatbot for lab assistants using Next.js, LangChain, Ollama, and OpenAI OSM, eliminating 60% of manual laboratory instrument configuration tasks.
- Singlehandedly migrated C and PHP monolith server architecture to Python microservices deployed on AWS.

Ball AI, USA: Software Engineering Co-op

May 2025 - Jan 2025

- Maximized mobile inference efficiency by optimizing CoreML models on the Apple Neural Engine, compressing model size by 50% (to 86MB) while sustaining 30 FPS with 92% accuracy.
- Synthesized CoreMotion and HealthKit data through WatchOS to a Next.js web dashboard via Firebase GCP, achieving sub-150ms data latency for real-time performance monitoring and health insights.

DocTrue Technologies: Founding Engineer

Aug 2023 - Aug 2024

- Orchestrated a fault-tolerant microservices architecture on AWS (ECS, EC2, RDS), scaling backend capacity to handle 30,000+ requests/sec while preserving 99.9% system uptime.
- Engineered a high-throughput messaging gateway API that handled communication for 250,000+ users.
- Revitalized clinical operations for 450+ doctors by building a multi-tenant CRM for workflow automation.

UNL Global: DevOps Intern

Jan 2023 - Apr 2023

- Developed a multiprocessing architecture with Python, Go, PostGIS to convert geospatial buffers to GeoJSON
- Accelerated deployment speed by 250%, scripting automated Kubernetes deployments with Terraform & Helm
- Processed 2100 GB+ OSM datasets via microservices, mapping Earth with 99% accuracy at 5 sq.cm precision

SayHey: Web Developer Intern

May 2022 - Aug 2022

- Scaled to 15000+ DAUs by optimizing the web application with Service Workers and reusable UI components.
- Refactored 90+ SpringBoot APIs after automated testing with Cypress & Postman, improving system reliability.

Pasken Co: Data Engineering Intern

Sep 2021 - Dec 2021

- Automated ETL with AWS Glue, microservices on Docker, S3, Step Functions, and saved 25+ hours per week.
- Achieved 60% greater system visibility with ELK stack, Filebeats for logging and CloudWatch for visualization.

SKILLS

Languages: Java, Python, C++, Go, TypeScript, JavaScript, Swift, SQL, PHP, HTML, CSS

Cloud & DevOps: AWS (ECS, RDS, S3, CloudWatch), Docker, Kubernetes, Terraform, Helm, CI/CD

Backend & Systems: Spring Boot, FastAPI, Django, Express, Laravel, PostgreSQL, Redis, Kafka, RabbitMQ

Web & Frontend: React, Next.js, Angular, Tailwind, Flowbite, ShadCN, Material UI

Mobile: iOS SDK, CoreML, SwiftUI, Apple Neural Engine, Android SDK, Jetpack Compose, React Native, Flutter

AI/ML: PyTorch, TensorFlow, Scikit-learn, OpenCV, Hugging Face, LLMs, Model Optimization, CNNs, Vision, NLP

Soft Skills: Ownership, Accountability, Customer Obsession, Problem Solving, Teamwork, Adaptability

PROJECTS

PerCent: Financial Intelligence Platform | Python, React, AWS, LLM Nov 2024

- Spearheaded a financial insight tool using Qwen-14B LLM with live Plaid API and live market data scraper using Python and Selenium, improving user satisfaction scores by 85% through personalized recommendations.
- Optimized LLM load by 33% implementing semantic caching (Redis) and RabbitMQ for asynchronous tasks.

Xinu - Low-Latency Kernel Memory Optimization | C, Systems Programming, x86 Assembly, Unix Oct 2024

- Implemented a custom virtual memory subsystem for the Xinu kernel, optimizing page replacement algorithms to minimize memory access latency - a critical factor in High-Frequency Trading (HFT) environments.
- Wrote 10+ custom system calls in C to manage concurrent backing store access to ensure thread safety and data consistency.

HASChain: Distributed Ledger for Real-Time Settlement | Go, Blockchain, Smart Contracts Apr 2024

- Architected 8 GPU nodes for a peer-to-peer settlement blockchain network using Geth, HiveOS, Polygon Edge, and Byzantine Fault Tolerance, which was optimized for high-volume transactions.
- Reduced transaction fees up to 55% by configuring ERC-721/20 contracts on the L2 chain with custom consensus & on-chain IPFS.
- Developed a JSON-RPC API gateway for transactions and Grafana UI to monitor node health and integrity.

ChakraView: Real-Time Personnel Monitoring System | IoT, Kafka, Spark Jun 2023

- Piloted a low-power on-premise hardware tracking system with State Police using ESP8266 and Neo6M, monitoring 200+ personnel with 75ms latency via NavIC, BLE, NFC and QR for fallback.
- Reduced police response time by 40% via real-time Kafka alerting, Spark/LSTM analytics, and GenAI suggestions.

MapNL: Road Infrastructure Transparency Platform | Python, Java, React, PostgreSQL, AWS, GIS Apr 2023

- Ensure transparency to improve road infrastructure. Users: Government, contractors, and commuters.
- Micro-mapped potholes and other issues with 50 cm accuracy and determined road quality index.
- Digitalized the road repair tender lifecycle with bidding, workflow management, and auditability modules.

AnyChains: 1500+ stock options from the TCP server displayed in real-time with calculated Greek statistics.

AnyTracker: Inventory Management System leveraging AI for prediction, space & employee management.

EarthRich: Promoting sustainability investment and tracking them from all stock markets and mutual funds.

VOLUNTEERING/COMMUNITY

- Mentored 20+ peers in full-stack web development, leading to successful placement in their first internships.
- Collaborated with multiple startups and early-stage companies to create exclusive opportunities and network.

AWARDS & RECOGNITIONS

- Featured in the "News18" television news channel for the Smart India Hackathon 22.
- Felicitated by Mumbai Police for building the product ChakraView.
- Featured in Dainik Jagran (Indian national newspaper) and NCR Express News for Kavach 23.
- Finished as the best in the IIM Bengaluru startup Cohort'23 and top 10 in the WTF Startup Fund.

EXTRA-CURRICULAR ACTIVITIES

- Won 6 hackathons and led a team to a top 5 finish at the HackNC24 in Chapel Hill, North Carolina.
- Set up Mumbai's first blockchain laboratory at KJ Somaiya College of Engineering.
- Taught the basics of technical entrepreneurship in India's most prestigious management institute IIMB.
- Conducted a free 3-day web development boot camp at S.A.K.E. College, attended by 250 students.
- Delivered Blockchain development and Backend development seminars for juniors at my university.
- Finished top 5 among 13k and 23k teams at the SIH22 and Kavach23 government hackathons, respectively.
- Mentor for KJSCE Hack8, a national-level hackathon.