VARUN PASTARIA

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EDUCATION

Illinois Institute of Technology, Chicago, IL — Expected May 2027
M.S. Computer Science
GPA : 3.70 (Scale 4.0)

SKILLS

- Programming Languages: Python, Java, C++, JavaScript, TypeScript, SQL
- Backend & APIs: REST API Development, Django, Flask, Node.js, GraphQL
- Frontend: React.js, Next.js, HTML, CSS
- Databases: PostgreSQL, MongoDB (SQL/NoSQL)
- Cloud & DevOps: AWS (Lambda), Docker, Jenkins, Linux, Git
- Tools : PyTorch, TensorFlow, Scikit-learn, NumPy, NLP, Transformers, Model Fine-Tuning, OpenAI API, Retrieval-Augmented Generation (RAG)

EXPERIENCE

Senior Software Engineer
Standard Chartered Bank — September 2023 - July 2025

- Optimized mission-critical production data pipelines processing **1M+ records daily**, improving performance by **25% through advanced query tuning** and stored procedure refactoring.
- Designed and deployed a serverless AWS workflow using Lambda, SQS, and event-driven architecture, **reducing infrastructure costs** by **40%** while improving scalability.
- Improved core service performance by **optimizing REST APIs and database interactions**, reducing average latency by **15%** and increasing throughput under peak load.
- Led release process improvements across engineering, QA, and product teams, **doubling deployment velocity** while reducing post-release defects by **40%**.
- Built internal tooling and **ServiceNow automation** to streamline operational workflows, improving ticket resolution efficiency by 18%.

Software Engineer
Dollar General — September 2022 - August 2023

- Architected **distributed backend services** handling large-scale retail inventory and sales data across thousands of stores, enabling near-real-time operational insights.
- Built cloud-ready microservices using Node.js and PostgreSQL, improving system scalability and reducing **order processing latency** by **25%** under production workloads.
- Eliminated database bottlenecks by **40% through query tuning, indexing strategies, and caching layers**, significantly improving application performance.
- Engineered resilient APIs with **rate limiting, retries, and observability tooling** to ensure service reliability during high-traffic events.
- Drove containerization using **Docker** to support cloud migration, improving deployment reliability and environment parity across staging and production.
- Collaborated cross-functionally to deliver **analytics-driven features** that improved forecasting accuracy and business efficiency.

GOOGLE SUMMER OF CODE (GSoC) 2025
Contributor — AI Med Ed Consortium (OpenMRS) — May 2025 – Aug 2025

- Selected for **Google Summer of Code** to contribute to the AI Med Ed Consortium, a global open-source initiative focused on integrating AI technologies into medical education systems.
- Designed and implemented features enabling **AI-assisted learning workflows**, improving accessibility and scalability of educational resources.
- Built and integrated **APIs to support interaction** with **machine learning models** for clinical training use cases.
- Evaluated tradeoffs between classical ML approaches and modern **deep learning methods** for NLP tasks in a resource-constrained environment.
- Designed modular ML components aligned with **MLOps best practices**, enabling reproducible experiments and scalable deployment.
- Worked closely with mentors and contributors from multiple institutions to deliver project milestones on schedule.

Software engineer Intern
Cognizant, New Delhi, India — January 2022 - July 2022

- Re-architected **17+ web pages** using React, HTML, and CSS within an Agile framework, improving UI/UX and long-term code maintainability.
- Streamlined **backend data operations** using Python, reducing manual workload by **40%**.
- Refactored a **user authentication** module using React Hooks and Context API, decreasing login-related bugs by **25%**.
- Optimized data queries using advanced algorithms, reducing response time to **20ms**.

Research Projects

Reasoning for Multiple LLM Agent Coordination (NeurIPS 2026) — Sep 2025- Present

- Developed a suite of **multi-agent peer-peer collaboration tasks** testing different aspects of collaborative reasoning such as
- sharing resources, skill sets, expertise, and information.
- Leveraged the efficient **function calling abilities of LLMs** to ground the agents in the world of Minecraft by creating custom tools.
- Conducted comparative evaluations of contemporary language models, highlighting **success rates** across tasks and providing.