Varsha Viswanathan

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Education

The University of Texas at Dallas | Master of Science in Computer Science (CGPA: 3.64/4) — Aug 2023 – May 2025

Anna University | Bachelor of Engineering in Computer Science and Engineering (CGPA: 9.12/10) — Jun 2019 – Apr 2023

Experience

Software Engineer — Sep 2025 – Present

Unicgate — Richardson, TX

- Developed and co-owned a full-stack mobile fitness application using **Flutter**, **Firebase**, and **Cloud Firestore**, implementing step tracking, challenges, and real-time sync to support **2K+ active users** across iOS and Android.
- Implemented backend processing with **Cloud Functions (Node.js)** to ingest step events, validate challenge completion, and enforce idempotent writes, reliably handling **100K+ daily step updates** without duplicate or dropped records.
- Engineered solutions for mobile-specific constraints including sensor noise, background execution limits, and offline usage by adding debouncing logic, timestamp-based reconciliation, and retry queues, reducing step-count inconsistencies by **30%**.
- Led backend quality testing by authoring **300+ gold test cases** and validating concurrency, offline sync, and race conditions using **Jest**, **Firebase Emulator Suite**, and load simulations across **1K+ concurrent sessions**.
- Instrumented production observability using **Firebase Performance Monitoring** and **Splunk dashboards** to track function latency, throughput, and error rates, keeping p95 execution time under **250 ms** during peak challenge traffic.
- Built reusable UI components and owned the end-to-end challenge experience using **Flutter widgets** and state management patterns while maintaining consistent UX reducing iteration time by approximately 40%.
- Enabled early production readiness by live-testing backend limits and monitoring real traffic using **Splunk** and **Firebase tooling**, supporting **hundreds of simultaneous users** during initial rollout and contributing to external funding validation.

Software Development Intern — May 2022 – Jun 2022

ZOHO Corp — Chennai, IN

- Developed a full-stack ticket booking system for movies, trains, and flights using **Java, Angular, MySQL**, serving **3K+ users** with support for **individual and group reservations** across booking types.
- Designed a modular group-reservation algorithm to coordinate bulk seat allocation and availability checks, handling **120+ concurrent booking requests** while reducing overbooking incidents by **35%**.
- Optimized client-server communication by adopting **Gson** for JSON serialization, reducing payload size and improving average API latency from **320 ms to 270 ms** during peak traffic.
- Led edge-case driven testing for race conditions, coupon misuse, and concurrent writes using **JUnit**, achieving **0 critical booking failures** across **1K+ simulated transactions**.

Software Development Intern — Dec 2021 – Mar 2022

Zeus Desk — Chennai, IN

- Built a scalable full-stack application for loan and customer workflow management used by **50+ regional banks**, developing reusable UI components with **React, Redux, CSS** and integrating backend services backed by **MySQL**.
- Resolved performance bottlenecks caused by high-frequency state updates and simultaneous requests from multiple banks by optimizing Redux state management and API integration, reducing dashboard load time from **4s to under 1.8s**.
- Extensively utilized **GitHub** and **CI/CD** pipelines to automate builds, testing, and deployments, improving code quality and speeding up feature delivery for high-quality softwares.

Projects

DocuWrangler | *LangChain, GPT-4o, PyMuPDF, Unity VR, Flask, React*

- Built a full-stack GenAI application to solve slow, manual analysis of large financial reports by developing a **React and Tailwind** interface and **Flask** APIs that enable structured querying with tables, images, and highlighted citations.
- Implemented a retrieval augmented generation (RAG) pipeline using **LangChain**, **GPT-4o**, and **PyMuPDF** to extract and ground answers from unstructured documents, achieving **92% retrieval accuracy** on financial datasets.
- Architected a PDF to vector embedding pipeline that enables section level question answering by chunking and indexing **1K document segments** per upload, retrieving exact references to specific PDF sections for grounded, cited chat responses.
- Delivered a working production prototype under tight constraints, securing **a win at HackAI 2025, UTD** by transforming static documents into actionable insights within a **24-hour sprint**.

Cat Search Engine | *Apache Nutch, Solr, Rocchio Algorithm, Clustering, React*

- Developed a full-stack search engine to address inefficient discovery of niche web content by crawling and indexing **150,000+ websites** using **Apache Nutch** and **Solr**, enabling fast and scalable information retrieval.
- Designed a **React** and **CSS** based search UI with ranked listings, previews, and contextual snippets, enabling intuitive exploration while supporting large-scale indexed data.
- Improved search relevance by applying **Rocchio relevance** and clustering, increasing top-result relevance by **40%**.

Technical Skills

Programming: Java, Python, C++, C, HTML, CSS, ReactJS, Javascript, Typescript, Node.js, REST APIs

Frameworks/Tools: Flask, Django, , Jira, Postman, Splunk, Terraform, Git, CI/CD, Docker, Confluence, Bitbucket

Databases: SQL, MySQL, NoSQL, PostreSQL, MongoDB