**Vikram Iyengar**

(704) 737 1543 | Charlotte, NC | [vikramiyengar17@gmail.com](mailto:vikramiyengar17@gmail.com) | U.S. Citizen

**EDUCATION**

**University of North Carolina at Chapel Hill** | (Aug. 2021 – May. 2025)

B.S. Computer Science and Economics | Minor in Data Science

DATA Science Credential in Economics (May. 2025)

* **GPA**: 3.61/4
* **Relevant Courses**: Data Structures, Algorithms and Analysis, Software Engineering Foundations and Lab, Computer System Fundamentals, Compilers, Data Science, Economic Methods of Data Analysis, Machine Learning, Distributed Systems
* **Achievements and Clubs**: Dean’s List Awardee, Carolina Analytics and Data Science Club, University of North Carolina at Chapel Hill Symphony Orchestra

**EXPERIENCE**

**Mainframe Software Division/Full Stack Intern – Broadcom**

Durham, NC (May. 2024 – Aug. 2024)

* Engineered a full stack application interfacing with mainframe systems. Managed different versions through **Git and GitHub**.
* Automated build, test, and deployment processes via **Jenkins and Docker**, enabling continuous integration and delivery.
* Implemented a responsive frontend with **React, TypeScript, HTML, and CSS**, and built a **Spring Boot–based Java** backend leveraging Java SDK, with comprehensive **JUnit** test coverage following TDD principles.
* Integrated a **PostgreSQL** database to store scraped data, ensuring efficient data retrieval and persistence.
* Collaborated in an **Agile environment** through daily stand-ups and translated requirements into user stories with defined acceptance criteria.
* Implemented **LLM** pipeline with **Llama** leveraging RAG architecture to ensure accurate information retrieval.

**Software Engineer – Course Scheduler for UNC Department of Computer Science**

UNC Chapel Hill (Aug. 2024 – Dec. 2024)

* Developed a full-stack application for a UNC Computer Science Professor to centralize and automate department course scheduling based on professor and course constraints.
* Created RESTful APIs for data retrieval with **FastAPI** and managed data persistence through **SQLLite**.
* Designed and implemented a linear optimization algorithm utilizing **Python’s** **PuLP** library, allowing constraints to be effectively encoded.
* Accelerated schedule generation by **over 80%**, significantly reducing the time to generate an optimal schedule.

**PROJECTS**

**Student Registration and Check-in Service**

Full Stack Developer, Team Lead/Member

* Developed analytics feature for the UNC Computer Science Lab, enabling users to view real-time registration and usage statistics.
* Built a dynamic, interactive user interface with **Angular**, **TypeScript**, and **HTML**.
* Integrated a **FastAPI** backend with **SQLAlchemy** for data persistence and CRUD operations over HTTP.
* Deployed the application on the UNC Carolina CloudApps platform using **Kubernetes**.

**Distributed Multi-Threaded Map-Reduce Framework**

Developer

* Developed a **multi-threaded** MapReduce engine in Java, leveraging **Java RMI** for distributed communication.
* Implemented a blocking queue mechanism to dispatch work to multiple threads, handling concurrency, interrupt-driven termination, and partition-based data processing.
* Gained hands-on experience with thread synchronization (barriers, locks) and performance optimization.
* Leveraged the model-view-controller design architecture to structure the application.

**MiniJava Compiler**

Developer

* Built a compiler in **Java** targeting a simplified subset of the Java language. Performed lexical, syntactic, and semantic analysis to construct an Abstract Syntax Tree.
* Implemented code generation to translate the Abstract Syntax Tree into **x86**-compatible bytecode, executable on **Linux** systems.

**Other Projects**

* **Akari/Light Up Game**: Recreated the popular Light Up game using JavaFX for the UI (**Java, JavaFX, CSS**).
* **Shell**: Created a shell that executed basic CLI instructions within a Linux environment (**C**).

**SKILLS**

**Programming**: Java, JavaScript, Typescript, Python, C, C#, R, HTML, CSS, Angular, React, SQL

**Software:** Jenkins, Maven, FastAPI, SpringBoot, Next.js Git, Docker, Kubernetes, Microsoft Azure, Word, PowerPoint, Excel, Selenium, Llama

**Technical**: Agile, Scrum, Project Management, Data Analysis