

# DHRUVIN GANDHI

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## EDUCATION

### Master of Science in Computer Science

Sep 2023 - May 2025

#### University of Massachusetts, Amherst

GPA: 3.95/4.0

Relevant Coursework: Distributed Systems, Software Engineering, Advanced Natural Language Processing, Machine Learning, Data Science Fundamentals, Information Retrieval

### Bachelor of Technology in Computer Engineering

Aug 2019 - May 2023

#### Veermata Jijabai Technological Institute

GPA: 9.13/10

## EXPERIENCE

### Software Engineering Intern

Jun 2024 - Aug 2024

#### Interactive Brokers

Greenwich, CT, USA

- Developed formal models of complex distributed trading protocols (written in C++) using P language and C#, tested for consistency, fault tolerance, and latency properties.
- Identified a critical bug in real-time data access for multi-regional clients due to asynchronous request delays. Proposed a working solution utilizing **Logical Lamport clocks**, ensuring correctness across distributed environments.
- Enabled Java method invocation in a P runtime environment by implementing a **C++ bridge** that utilizes Java Native Interface, enhancing the interoperability of the runtime environment.

### Software Engineering Intern

May 2022 - Jul 2022

#### Morgan Stanley

Mumbai, India

- Developed a full-stack internal web tool (Spring Boot, Angular, TypeScript) from ground up to address the challenge of unauthorized database updates, currently utilized by **7 different teams**.
- Built a **dynamic and reusable** Angular UI for efficiently rendering and filtering amongst **10,000+** rows from each database table based on the CRUD operations.
- Optimized a Python script to synchronize the DEV Table with PROD Table containing **~28M rows**, drastically reducing the execution time from **8hrs to 15 mins**.

### Software Engineering Intern

May 2021 - Jul 2021

#### Jobdae (Startup)

Remote, India

- Designed and implemented back-end web architecture using Python, Django, and MySQL, created **REST APIs** defining functionality for profile management and job application tracking.
- Developed an **automated email notification system** that promptly informs clients of job application submissions and status updates in real-time, boosting user engagement.

## PROJECTS

### Fault-tolerant Distributed System | Java, Zookeeper, Cassandra

- Implemented a **multi-threaded** Fault-tolerant replicated datastore algorithm using Zookeeper as the centralized service, ensuring consistency across replicated servers experiencing **1000 requests/sec** from numerous clients ([Code](#))

### Personalizing LLM using Generative Retrieval | Python, NLP, Information Retrieval, Gen AI

- Generated hypothesis documents based on user input to improve the **dense retrieval search** in user profile history. Deployed a **BERT model** to extract relevant chunks, increasing LLM output personalization by **17%**. ([Paper](#))

### DocuCare - Full-Stack Patient Tracker System | Spring Boot, Angular, JavaScript, Postgres, Amazon S3, JUnit

- Led a test-driven development of a **MVC web application** using agile software design principles such as, version control with Git, organizing development into sprints with fixed durations of 2 weeks and conflict resolution ([Code](#))

## SKILLS

### Programming Language Technologies/Frameworks Software

C, C++, Java, Python, R, JavaScript, TypeScript, HTML5, CSS3, SQL, NoSQL  
Flask, Django, Express.js, Node.js, Angular, React, Flutter, Spring Boot, Spark  
Git, Linux, Windows, IntelliJ, PyCharm, MongoDB, Postgres, Kubernetes, AWS

## ACHIEVEMENTS

Secured **2nd position** in a National Level Hackathon-ERR404, for building a finance tracker system (NodeJS, Flutter, MongoDB) to address the business requirements of the Bitkraft company.

Amongst Top **3.69%** worldwide contestants on Leetcode. **Knight Badge** on Leetcode. Contest Rating - **1939** ([Leetcode](#))