

DHRUV AGARWAL

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EDUCATION

University of Illinois Chicago

Chicago, Illinois

Master of Science in Computer Science; GPA: 3.77/4.0

May 2024

- **Coursework:** Object-Oriented Languages, Distributed Systems, Data Science, Neural Networks, Query Processing

Vellore Institute of Technology

Vellore, India

Bachelor of Technology in Computer Science; GPA: 8.6/10.0

June 2021

- **Coursework:** Software Engineering, Data Structures and Algorithms, Web Development, Network and Communication
- **Electives:** Business Analytics, Lean Startup Management, Statistical Analytics for Business Research, Marketing Management

EXPERIENCE

UIC Business

Chicago, Illinois

Technology Associate

June 2024 – Present

- Engineered custom third-party Zoom Rooms Controllers using C++ SDK, improving video conferencing setup time by 50%.
- Implemented low-level APIs to establish bi-directional communication between custom applications and Zoom Rooms, achieving 95% feature parity with first-party controllers.

Graduate Assistant

Jan 2023 – May 2024

- Spearheaded automation projects using MS PowerApps and Power Automate, reducing on-boarding time by 75%.

Competent Electric Company

India

Software Engineer

June 2021 – July 2022

- Developed and maintained a full-stack sales and inventory management system using Flask, integrating SQLAlchemy for ORM and Jinja2 for dynamic templating, ensuring efficient data handling.
- Optimized database performance by refactoring complex PostgreSQL queries, achieving a 40% reduction in query execution time and improving system responsiveness.
- Implemented automated CI/CD pipelines with PyTest and Docker, enhancing test coverage, reducing deployment time, and ensuring system reliability.

YA Ventures

India

Software Engineering Intern

May 2020 – July 2020

- Innovated and deployed a chatbot interface for the company's landing page, utilizing BERT-based NLP Deep Learning models to achieve a 95% quicker responses to customer queries.
- Developed the backend using Flask REST APIs, Microsoft Azure, managing over 1 million records.

PROJECTS

SketchSync | TypeScript, React, Next.js, Tailwind CSS, Node.js, Socket.IO | [🔗 Link](#)

- Built a real-time collaborative digital whiteboard, supporting simultaneous editing by up to 10 users.
- Engineered user authentication and version control system using Node.js and PostgreSQL.
- Containerized the application with Docker, ensuring consistent deployment across environments.

Commuter Safety Analysis in Chicago | Python, Pandas, Sodapy, Folium, Seaborn | [🔗 Link](#)

- Developed predictive models using Random Forest, Decision Tree, and Gradient Boosting to analyze traffic accident data and predict accident severity.
- Conducted EDA on large datasets (1.5M+ rows), identifying key patterns and trends for data-driven insights.
- Created data visualizations such as heatmaps and bar charts to highlight accident hotspots and trends by weather and time for traffic safety analysis.

Distributed Systems Simulator | Scala, Akka, ScalaTest | [🔗 Link](#)

- Architected a scalable simulator for distributed algorithms including Snapshot, Wave, and Election, using Scala and Akka.
- Leveraged Akka's Actor model for concurrent computation, improving system performance.
- Developed a menu-driven program to execute 8 distributed algorithms on various network topologies.

Assembly Language Interpreter | C++11 | [🔗 Link](#)

- Developed an interpreter for Simple Assembly Language (SAL), implementing a virtual machine with 32-bit word-addressable memory.
- Designed and implemented core components including accumulator register, program counter, and special-purpose bits.

TECHNICAL SKILLS

Languages: Python, C++, TypeScript, JavaScript, SQL, Scala, Ruby, GraphQL

Web Technologies & Frameworks: React, Next.js, Node.js, Flask, Django, HTML, CSS, Tailwind CSS

Databases: MongoDB, PostgreSQL, MySQL, Elasticsearch, Firebase, Apache Cassandra, Redis

Tools & Platforms: Docker, Kubernetes, Kafka, Git, AWS, GCP, Azure, Postman, Jenkins, CI/CD, REST APIs