

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:** Data Structures and Algorithms, Software Engineering, Web Development, Networks and Communication

EXPERIENCE

UIC Business

Chicago, Illinois

Software Engineer

June 2024 – Present

- Developed scheduling system integrations with Starfish and iAdvise using JavaScript and Python REST APIs, processing 1000+ student appointments/day.
- Architected custom Zoom Rooms controllers via C++ ZRC SDK, streamlining video conferencing workflows, reducing setup time by 50%, and enhancing usability for 200+ users.
- Engineered bi-directional communication APIs for Zoom Rooms, achieving 95% feature parity, enhancing feature coverage, and optimizing interoperability with third-party applications.

Graduate Assistant

Jan 2023 – May 2024

- Developed Python scripts for migrating 50K+ student records, achieving 99.9% accuracy with edge-case exception handling and automated logging.
- Automated onboarding workflows using Python scripts and Power Automate, cutting IT and HR processing time by 75%.

Competent Electric Company

India

Software Engineer

June 2021 – July 2022

- Developed a Flask-based sales & inventory system, optimizing SQLAlchemy ORM queries, reducing load times by 30%, and scaling data management for 500+ transactions/day.
- Refactored PostgreSQL queries, decreasing execution time by 40%, boosting API response speed, and enabling seamless handling of high-volume transactions.
- Automated deployments with PyTest, Docker, and GitHub Actions, achieving 95% test coverage and speeding releases by 60% and minimizing post-deployment failures.

OPEN SOURCE CONTRIBUTIONS

Curio | TypeScript, Python, React.js, Node.js | [🔗 Link](#)

- Optimized DataPool node performance by implementing a preview display system, reducing frontend data transfer while preserving full interaction capabilities.
- Fixed inconsistent merge node behavior by enforcing positional input logic, resolving edge cases in multi-input workflows and improving user experience.
- Added comprehensive frontend unit test coverage using Jest and React Testing Library, validating modal, file upload, and async interaction flows across 18+ test cases.
- Overhauled and redesigned documentation using MkDocs Material, enabling responsive layout and intuitive navigation for contributors and users. | [🔗](#)
- Authored a vision document articulating a systems-level approach to open source research software, highlighting design philosophy, technical depth, and thoughtful direction. | [🔗](#)

PROJECTS

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

- Engineered a collaborative digital whiteboard, enabling real-time editing for 10+ users via WebSockets, enhancing productivity in distributed teams.
- Built version control logic and session tracking using in-memory storage and JWT auth, enabling consistent multi-user editing and rollback features.
- Optimized deployment with Docker containers, standardizing environments across dev, test, and production, reducing deployment issues by 90%.

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

- Designed an interactive simulator for 8 distributed algorithms (Snapshot, Wave, Election), enabling topology-based execution with real-time performance tracking, scaling computation across 100+ nodes.
- Implemented Akka's Actor model for concurrency, boosting processing efficiency by 3x and enhancing system throughput.

TECHNICAL SKILLS

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

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

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

Tools & Platforms: Docker, Kubernetes, Git, AWS (EC2, S3, Lambda), Azure, GCP, Azure, Postman, Kafka, Jenkins, CI/CD