

# PRATYUSH THAKUR

✉ pratyusht5424@gmail.com • 🌐 pratyushthakur • 📧 pratyush242

## EDUCATION

### University of Illinois Urbana-Champaign

Urbana-Champaign, IL

*Bachelor of Science in Computer Engineering*

May 2025

**Relevant Courses:** Data Structures & Algorithms, Machine Learning, Distributed Systems, Database Systems, Artificial Intelligence, Operating Systems, Web Development, Systems Programming

## PROFESSIONAL EXPERIENCE

### Microsoft Corporation

Santa Monica, CA

*Software Engineering Intern - Activision - Tooling & Infrastructure*

May 2024 - Present

- Programmed and integrated high-performance data compression modules in **C++** and **Rust** for Call of Duty: Black Ops 6, achieving a **35% reduction in asset file sizes** and a **15% decrease in the total game size**.
- Wrote **Python** scripts to scrape data from CI/CD Logs, Slack channels, Confluence documentation, and version control systems to assist the engineering team in developing an internal AI chatbot. **Improved developer productivity by 25%** through efficient resolution of common internal tooling, legacy code, and tribal knowledge questions.
- Currently working on efforts to reduce latency across **Cloud Infrastructure** and **Data Pipelines** for Call of Duty: Black Ops 6, using **Python**, **Azure**, **Apache Spark**, and **Apache Kafka**.

### Graybar Electric

Champaign, IL

*Software Engineering Intern - Full-Stack & ML*

May 2023 - Aug. 2023

- Consolidated 60 distinct paper-based business credit applications into a single data-gathering web application using **TypeScript**, **React**, and **Node.js**. **Reduced credit processing time by 43%**.
- Developed an ML-driven quote-to-text web app using **Python**, **Tesseract**, and **RESTful APIs** for backend, with a frontend in **JavaScript**, **React**, and **Tailwind CSS**. **Boosted order processing efficiency by 68%**.
- Led the effort to establish an efficient CI/CD pipeline in collaboration with the DevOps team, leveraging **Azure DevOps** for automating the build, test, and deployment processes on the **Azure Cloud**.
- Partnered with Data Analytics team to assist with **Snowflake** to **MongoDB** migration of legacy databases using **Python**, enabling horizontal scaling. **Increased query efficiency by 40%**.

### FedEx Corporation

Memphis, TN

*Software Engineering Intern - Data Mining*

Jun. 2022 - Aug. 2022

- Manipulated tabular data from **GCP** using **Google BigQuery** to develop a comprehensive dashboard in **Splunk** for analyzing threats in FedEx's IT system. **Reduced DDoS vulnerabilities at the network layer by 12%**.
- Created a notification pipeline using **Python** and **Flask** to promptly alert respective team members and their managers via Microsoft Teams for critical incident alerts.

### Indian Oil Corporation

India

*Software Engineering Intern - Full-Stack & ML*

May 2021 - Jun. 2021

- Developed a robust Machine Learning ensemble model in **Python**, utilizing the **Keras library** and **NumPy** for data manipulation, to analyze the fuel filling process **achieving an overall accuracy of 98%**.
- Engineered an internal dashboard with **React** (utilizing modern **JavaScript ES6+ features**) to interface with the U.S. Energy Information Administration API, enabling real-time visualization of hourly electric operating data and interactive data exploration with **D3.js**.
- Ensured the reliability and scalability of the dashboard by implementing comprehensive unit tests with **Jest**, integration tests with **React Testing Library**, and load tests with **JMeter**, **leading to a 20% improvement in system resilience under high traffic conditions**.
- Enhanced **Java** expertise by contributing to backend API development with **Spring Boot**, applying best practices in **RESTful** service design, and integrating with frontend operations for seamless data transactions.

## RESEARCH EXPERIENCE & LEADERSHIP

### CS/ECE 374 (Algorithms), UIUC

Champaign, IL

*Undergraduate Teaching Assistant*

Jun. 2024 - Present

- Assisting instructors in developing curriculum and educational materials for a class with over **300 students**, ensuring accessibility and comprehension for diverse learning levels by creating engaging slides using real-world examples such as Uber's route optimization for shortest path algorithms and DoorDash's delivery scheduling for dynamic programming.
- Leading discussion sections with over **40 students**, responsible for grading assignments and holding office hours to provide clarifications on complex algorithmic concepts like dynamic programming.

### Mathematical Language Processing Group, UIUC

Champaign, IL

*Research Assistant*

Dec. 2023 - Present

- Utilized **Python** to enrich a dataset of mathematical tokens, applying **Natural Language Processing (NLP)** techniques to identify tokens within varied contexts, significantly improving data quality for machine learning applications.
- Executed **Dimensionality Reduction and Noise Filtering strategies** to refine the dataset, ensuring optimal feature selection and reduction of irrelevant data for clearer model inputs.
- Currently working on a research paper to publish my findings.

## TECHNICAL SKILLS

**Languages:** Proficient: Java, C#, C, C++, Python, Rust, Go, x86 | Familiar: SQL, TypeScript, JavaScript, HTML/CSS

**Tools & Frameworks:** Git, React, MongoDB, PostgreSQL, Node.js, AWS, Azure, Docker, PyTorch, Spark, Kafka