

# Darshan Golchha

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## EDUCATION

### University of Wisconsin–Madison

B.S. in Computer Science and Data Science, Expected May 2026

GPA: 3.8/4 (Dean's List)

**Relevant Coursework:** Object-Oriented Programming, Database Management (SQL), Big Data and Distributed Systems, Operating Systems, Data Structures & Algorithms, Machine Learning, Data Science Modeling (R), Data Science Programming (Python), Web Development

## SKILLS

**Languages:** Java, Python, C, C#, C++, SQL, R, JavaScript

**Frameworks/Tools:** Spring Boot, Flask, Django, .NET, React, React Native, scikit-learn, Docker, REST API, JPA, Redux Toolkit, Web Sockets, Git, Unix/Linux, Tailwind CSS, JWT, Spring Security, Google OAuth, Firebase, Three.js, GSAP.

**Databases & Cloud:** MySQL, MongoDB, AWS, GCP, AWS S3, AWS EC2

**Specialized:** Full Stack Development, Software Development Lifecycle (SDLC), Operating Systems, Database Design, Distributed Systems, Concurrency (threads, synchronization), Anomaly Detection, ML Pipelines, Agile Methodologies (Scrum).

## EXPERIENCE

### Software Engineering & ML Intern — Opstree Solutions (May 2024 – Aug 2024)

- Built an **anomaly detection pipeline (Isolation Forest, scikit-learn)** to flag infrastructure anomalies in real time, improving monitoring accuracy.
- Engineered an **LLM-integrated code quality system** (SonarQube + SonarCloud), cutting critical bugs by 40% and automating reviews.
- Designed a **multi-VCS pull request analyzer** and a **dynamic infra design tool (React + Django + Google Gemini LLM)** that generated real-time high-level system architectures.

### Software Developer Intern — R Systems (May 2025 – Aug 2025)

- Built and deployed a full-featured mobile chat app using **React Native**, **Twilio** Conversations, **Spring Boot**, and **GCP**, enabling one-to-one/group messaging, media sharing, and push notifications for over 1,000 users in production.
- Implemented **Redux Toolkit** and dynamic environment configs, reducing boilerplate and enabling seamless development-to-production transitions, while **improving chat performance** and navigation stability.
- Automated Android/iOS **CI/CD** pipelines with **GitHub Actions** and integrated **FCM** via custom webhooks, overcoming Twilio FCM issues and achieving 70% faster release cycles and real-time **message delivery reliability**.

### Software Engineer Intern — Nucleus Software Exports (Jun 2023 – Aug 2023)

- Developed Nucleopedia, a **React + Java Spring Boot** knowledge management platform, reducing employee onboarding time by 70% for 1,500+ users by streamlining internal training and information access.
- Optimized **MySQL** database design and integrated **JPA** repositories, cutting query latency by 75% and improving system responsiveness with faster search and retrieval.
- Secured the platform using **Spring Security** and **JWT**, reducing unauthorized access by 98% through robust authentication and proactive threat mitigation.

## PROJECTS

### MiniSpark — Distributed Data Processing Framework (CS537, Spring 2025)

- Implemented a **mini version of Spark** supporting map, filter, join, and partition operations over RDD-like data structures.
- Built a **thread pool + work queue system** for efficient DAG scheduling, ensuring **parallel materialization of RDDs** across cores.
- Added runtime metrics collection for profiling execution, simulating real Spark behavior.

### AI Commit Risk Analyzer — Opstree Solutions (Jun 2024)

- Automated bug prediction using **LLMs + ML Models + CI/CD integration**, reducing critical production issues by 40%.
- LLMs** gave a comprehensive code review, **ML Models** used historical data associated with files and similar changes to predict severity of such a change. **SonarQube** metrics help provide further insights.
- Developed a **Master Severity Index** with dashboards, improving prioritization by 30%.

### Super Tic Tac Toe AI — Personal Project (Oct 2024)

- Designed an **AI-powered multi-grid Tic Tac Toe** with **minimax algorithm + alpha-beta pruning** for optimal decision-making.
- Built backend in Flask (Python) for **state management & AI computations**, and a React frontend for interactive gameplay.
- Optimized algorithmic performance, achieving faster and more accurate predictions in real-time play.

### Unix Shell (wsh) — CS537 Operating Systems Project (Spring 2025)

- Built a **Unix-style shell** in C supporting interactive & batch modes, environment/shell variables, and error handling.
- Implemented **pipes, command substitution, and variable substitution**, enabling concurrent process execution with `fork()`, `execv()`, `wait()`, `pipe()`, and `dup2()`.
- Added support for built-in commands (`exit`, `export`, `local`, `vars`, `ls`, `ps`) with correct parsing and precedence rules.

(More projects and info at <https://www.darshangolchha.com/>)

## ACTIVITIES

- Member, **Wisconsin Robotics – Software Team**, demonstrating strong **teamwork and collaboration**.
- Goalkeeper, Men's 7v7 Soccer Team, showcasing **leadership and adaptability in high-pressure situations**.