

# Shivam Ratnani

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## Education:

### University of Wisconsin-Madison:

**Bachelor of Science (BS) - Computer Science & Data Science** (Double Major)

Expected Graduation: **May 2025**

## Work Experience:

### EduTools [<https://edutools.app>] | Founder and Principal Software Engineer

**May 2024 – Present**

- Founded and developed EduTools, an educational platform featuring a secure proxy browser system with integrated extensions, collaborative tools, and OCR-powered analysis for processing academic materials.
- Architected a dual-LLM system using Mistral-7B for initial content analysis and prompt generation then dynamically rotating between LLama3, Gemma2, Qwen2.5-coder, and Claude 3.5 for specialized tasks.
- Built robust and secure backend infrastructure using Microsoft Azure for real-time content analysis for each user.
- Engineered a chat platform with group study features and automated content moderation using React and Node.js.

### Rightworks | Software Engineer Intern

**July 2024 – August 2024**

- Resolved 21 critical bugs in AccessHub's AngularJS web app, improving stability for 300,000+ active users.
- Collaborated on the development of a new Windows AccessHub application written in C#.
- Monitored and documented API performance with DataDog to optimize web application responsiveness.
- Designed and implemented a new state management system in AngularJS to address prevalent form issues, significantly improving user experience by replacing properties “.pristine, .dirty, and .touched”.

### Couillard Solar Foundation | Software Developer (Volunteer Work)

**August 2023 – Present**

- Spearheaded the design and development of a reactive web-based solar energy visualization platform for Deerfield, WI using a tech stack including *Svelte, Vite, Node.js, React.js, JavaScript, TypeScript, SQL, and Firebase*, while implementing sophisticated UI components and data visualizations using Plotly.js.
- Engineered real-time database interactions, authentication, and hosting services. Created CI/CD workflows via *GitHub Actions*, and showcased the renewable energy impact of seven bus stops by prioritizing code quality, scalability, and user experience using responsive elements.

### Amara Social | Software Engineer I

**December 2023 – March 2024**

- Developed cross-platform social networking app using React Native, Docker, and MySQL. Implemented features including real-time messaging, user profiles, customizable home feed, and status updates.
- Integrated advanced functionalities in the app such as real-time messaging, user profiles, home feed with recommended and friends options, status feature, and more.

## Skills:

**Languages:** Java, Python, C#, C++, JavaScript, TypeScript, CSS, R, Swift, SQL/NoSQL, Go, Rust, Ruby

**Frameworks:** AngularJS, React, Svelte, Node.js, jQuery, TensorFlow, Keras, Plotly, MongoDB, SwiftUI

**Tools:** Git, Docker, Microsoft Azure, AWS, Google Cloud Platform, Firebase

**Libraries:** Material UI, pandas, NumPy, Matplotlib, REST

## Projects:

### Stock Volatility Analyzer

- Data manipulation project in AWS using Python and React, designed to track and analyze over 19,000 stocks. The tool screens stocks at user-defined intervals and price ranges, displaying top gainers and losers based on the user's desired number of stocks to be outputted.
- Utilized EC2 for running the application, S3 for secure and scalable data storage with automated data retrieval, alongside AWS services like Lambda, API Gateway, and CloudWatch for system functionality.

### Connect 4 AI Game

- Developed Connect Four game in Python using Minimax algorithm with alpha-beta pruning, optimizing heuristic evaluation for game state assessment; implemented GUI with Pygame library