

# Rudra Patel

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## Education

**Lewis University, Romeoville IL**

**Expected: May 2026**

*Bachelor of Science in Computer Science, Concentration in Artificial Intelligence*

*GPA: 3.87 / 4.0*

- **Relevant Coursework:** Data Structures and Algorithms, Object Oriented Programming, Software Engineering, Artificial Intelligence, Machine Learning, Linear Algebra, Discrete Mathematics

## Experience

**Hometown Liquor** | *React, TypeScript, Python, FastAPI, PostgreSQL, REST APIs, Tailwind, Docker, JWT*

**May 2025 - Jul 2025**

*Freelance Software Engineer*

*Braceville, IL*

- Increased monthly revenue by **45%** to **\$40,000** by developing and deploying a full-stack e-commerce platform using React, TypeScript, FastAPI, and PostgreSQL for **750+** products
- Boosted customer conversion rate by **25%** through mobile-first responsive design and optimized search functionality using PostgreSQL indexed queries achieving **sub-200ms** response times
- Built **85+** RESTful API endpoints with FastAPI achieving **99.9%** uptime for critical operations (search, cart, checkout) with transactional integrity and comprehensive unit test coverage
- Reduced database load by **30%** by implementing Zustand state management to eliminate redundant API calls and secured application with JWT token-based authentication, implementing OAuth 2.0 flows, encrypted password storage, and HTTPS enforcement

**QuizMaster** | *React, JavaScript, Node.js, Tailwind, Google Cloud Platform, Github Actions, Firebase*

**Aug 2025 - Dec 2025**

*Lead Developer (Capstone)*

*Romeoville, IL*

- Led 4-person team in refactoring a **30,000-line** production React application, reducing dashboard load times by **6x** and cutting API calls by **83%** through Firebase query batching, caching, and service layer architecture across **65+** components
- Cut cloud hosting costs by **37%** by migrating **35+** Node.js cloud functions to v20 runtime and implementing caching layer that reduced database reads by **80%**
- Accelerated feature development velocity by **40%** by extracting business logic from **65+** React components into reusable service modules, improving code maintainability and test coverage by **60%**

## Projects

**ExoViz** | *React, TypeScript, Java, Spring Boot, Python, FastAPI, PostgreSQL, Redis, Docker, Maven*

**Nov 2025 - Present**

- Engineered interactive data exploration tool processing **5,000+** NASA exoplanet records with ML-powered habitability scoring, enabling researchers to filter and visualize planetary characteristics in real-time 3D
- Designed a 3-service microservices backend using Spring Boot, FastAPI, and Redis to reduce query latency by **50%** and improve database efficiency
- Developed an ML classification pipeline using Scikit-learn to predict planet habitability with **82%** accuracy, deployed as a standalone microservice
- Implemented a Three.js 3D visualization engine achieving **60fps** performance through instanced rendering and level-of-detail optimizations

**MasterChef Claude** | *React, Claude API, Tailwind, Firebase, Docker, AWS*

**Apr 2025 - May 2025**

- Built an AI recipe generator integrating Claude API with React frontend, serving personalized recipes in under **5 seconds** through optimized prompt engineering and async request handling for dietary restrictions and ingredient preferences
- Implemented 3-layer error handling with input validation and real-time feedback, ensuring **99%** successful API response rate
- Simplified deployment with Docker containers and automated CI/CD pipeline on AWS, reducing deployment time by **80%**

## Skills

**Languages:** Python, Java, JavaScript/TypeScript, C/C++, SQL, HTML/CSS

**Frameworks:** React, Node.js, Express.js, Spring Boot, FastAPI, Tailwind, Bootstrap

**Cloud/DevOps:** AWS, GCP, Azure, Docker, CI/CD, GitHub Actions, Maven

**ML/Data:** Scikit-learn, TensorFlow, NumPy, Pandas, Matplotlib, Data Visualization

**Databases:** PostgreSQL, MongoDB, Redis, Firebase, MySQL

**Tools/Concepts:** Git, Agile, System Design, REST APIs, Microservices, JWT/OAuth 2.0, Unit Testing, Security