

Rudra Patel

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Education

Lewis University, Romeoville, IL <i>Bachelor of Science in Computer Science, Concentration in Artificial Intelligence</i> Dean's List (All Semesters) Relevant Coursework: Machine Learning, AI, Data Mining, Software Engineering	Expected: May 2026 GPA: 3.87 / 4.0
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Experience

Hometown Liquor <i>React, TypeScript, Python, FastAPI, PostgreSQL, Tailwind, Docker</i>	May 2025 - Jul 2025
<i>Software Engineer (Contract)</i>	<i>Remote</i>
<ul style="list-style-type: none">Increased monthly revenue by 45% to \$40,000 by building a full-stack e-commerce platform for 750+ products with mobile-first design, PostgreSQL full-text search achieving sub-200ms response times, and checkout flow supporting guest and authenticated purchasesBuilt 89 REST API endpoints across 15 route modules using FastAPI and async PostgreSQL, implementing JWT authentication with tokens, role-based access control, and error handlingAutomated POS integration synchronizing inventory across distributed store network with API client handling pagination for 100+ items per batch, SKU matching with conflict resolution, eliminating manual inventory updates	
QuizMaster <i>React, JavaScript, Node.js, Tailwind, Google Cloud Platform, Github Actions, Firebase</i>	Aug 2025 - Dec 2025
<i>Lead Developer (Capstone) - Led a team of 6 developers</i>	<i>Romeoville, IL</i>
<ul style="list-style-type: none">Eliminated N+1 query pattern through network waterfall analysis, reducing dashboard load time from 30+ seconds to sub-5 seconds by implementing batch Firebase queries with a caching layer, consolidating 6 API calls to 1 endpointReduced production bundle 89% (16.1MB to 1.7MB) and cut cloud hosting costs 37% by converting 15MB of PNG assets to WebP, removing 9 unused Firebase Functions, and eliminating 26 redundant npm packagesMigrated 17 Firebase Functions from deprecated Node.js 16 to Node.js 20 ahead of the October 2025 deadline, implementing error handling and async patterns across 1,474 lines of cloud function codeRefactored component architecture to eliminate 80% of redundant database reads by extracting business logic into service layer, implementing React Context API for state management, and consolidating duplicate component render	

Projects

Analytics Pipeline <i>React, Node.js, TypeScript, Redis Streams, TimescaleDB, Docker</i>	Jan 2026
<ul style="list-style-type: none">Built event processing pipeline handling 2.4M events over 24 hours (28 events/sec, 280 events/sec burst) with Redis Streams consumer groups achieving <10ms latency and zero message lossReduced dashboard query latency 55x (1.8s → 33ms) by implementing TimescaleDB continuous aggregates with 3 materialization levels (minute/hour/day) and automatic refresh policies, eliminating real-time aggregationDeveloped REST API with 5-38ms response times using strategic caching (5-10s TTL) and continuous aggregates, powering React dashboard with auto-refresh polling (5s intervals) and Recharts visualization across 2.4M+ records	
Social Media Sentiment Classifier <i>Python, Scikit-learn, TF-IDF, GridSearchCV</i>	Nov 2025
<ul style="list-style-type: none">Built a sentiment classification system comparing three approaches on 241K social media posts: Logistic Regression with TF-IDF (78% accuracy), Multinomial Naive Bayes with Bag-of-Words (67%), and pretrained RoBERTa (54%)Implemented GridSearchCV with 5-fold cross-validation testing 192 parameter combinations (max_features=25k, C=1.0, sublinear_tf=True), achieving 78% test accuracy demonstrating strong generalizationValidated data quality impact through cross-dataset evaluation. RoBERTa hit 74.6% on tweet_eval but dropped on noisy Kaggle data, while Logistic Regression showed the opposite trend, proving domain alignment outweighed model complexity	

Skills

Languages: Python, Java, JavaScript/TypeScript, SQL, HTML/CSS
Frameworks & Tools: React, Node.js, Spring Boot, FastAPI, Tailwind, Docker, CI/CD, GitHub Actions
Database & Cloud: PostgreSQL, Redis, Firebase, MySQL, AWS, GCP, Azure, TimescaleDB
ML/Data & Architecture: Scikit-learn, TensorFlow, Pandas, REST APIs, System Design, Microservices, Event-driven Architecture