

Ruchir Jadhav

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WORK EXPERIENCE

Easley Dunn Productions (Mobile Software Studio)

Remote

Software Development Engineer

Feb 2026-Present

- Built the Node.js/Express backend for SafetyNet, a cross-platform React Native app, implementing JWT + Firebase OTP authentication, a CTE-based social-graph discovery algorithm with Haversine proximity ranking, and three-tier rate limiting (20/10/200 requests per 15 min) over PostgreSQL, which enabled secure user login and faster friend suggestions, improving overall user engagement.
- Engineered real-time messaging via Socket.IO with JWT-authenticated WebSocket handshakes, AES-256-GCM encrypted storage with versioned plaintext fallback, and atomic PostgreSQL transactions for message persistence and notification fanout, delivering a low-latency, secure chat experience for users.
- Shipped 46+ merged pull requests across backend and mobile, delivering a three-tier-fallback university autocomplete proxy, a Leaflet map WebView with geospatial filtering, and 40+ Firebase Analytics events across major user flows, which expanded the feature set and provided actionable usage insights.

Amazon Web Services (AWS)

Seattle, WA

Software Development Engineer Intern

May 2025-Aug 2025

- Built a four-component backfill system in Go for the Amazon EKS Metrics Service, resolving CloudWatch API outages that had caused up to 6-hour metric data gaps; implemented failure detection, hierarchical data preservation, and chronological replay for zero data loss.
- Designed a hot-reloadable failure simulation framework with per-log-group injection rates (0–100%) and S3-synced JSON config for safe outage testing in beta; validated recovery end-to-end via before/after CloudWatch dashboard comparisons.
- Coordinated recovery by implementing offset-timed reprocess (30 s) and republish (45 s) services with AWS-specific retry/backoff, CloudWatch Logs batching (100 events/10 KB), and S3 lifecycle tiering (Standard→IA→Glacier), which shortened outage recovery time and ensured continuous data availability during extended incidents.

BusinessNext (Financial Services CRM for Banks and Credit Unions)

Mumbai, India

Data Engineer

Sep 2023-May 2024

- Built and refined SQL queries on Linux using Django ORM to power client-portfolio dashboards for Relationship Advisors in BusinessNext's banking CRM, enabling the frontend React Native team to deliver responsive visual reporting interfaces.
- Developed data logic to surface product recommendation opportunities for banking clients, translating Relationship Advisor requirements into structured queries that identified better-fit financial offers from existing account data.

ACADEMIC PROJECTS

FACTUAL — Real-Time Multimodal Fact-Checking

Jan 2025-May 2025

- Co-designed an end-to-end fact-checking pipeline combining OpenAI Whisper ASR, transformer-based claim extraction, and a Retrieval-Augmented Generation (RAG) module with Google Search/News API retrieval and a self-critique loop where a judge LLM iteratively refines queries (up to 10 iterations) to reduce hallucination.
- Built a custom 400-claim benchmark spanning pre- and post-model-cutoff claims, augmented with speech-like disfluencies and converted to audio; evaluated GPT-4o and Gemini across zero-shot, RAG, and agentic configs, with the best (GPT-4o Agentic) reaching 84% accuracy and 0.83 F1 on post-cutoff claims.

Multimodal Emotion Detection

Jan 2025-May 2025

- Balanced the MELD dataset across 7 emotion classes using audio/video augmentation; fine-tuned a LoRA-augmented transformer with OpenFace facial Action Unit features to improve classification on underrepresented classes.
- Built an end-to-end multimodal inference pipeline combining BERT (text), HuBERT (audio), and video modules with automated feature extraction and late fusion, achieving ~70% weighted accuracy across cross-validation folds.

EDUCATION

University of Southern California

Los Angeles

Master of Science in Computer Science

Jun 2024-Dec 2025

University of Mumbai

Mumbai

Bachelor of Technology in Computer Engineering

Jul 2019-Apr 2023

LANGUAGES & TECHNOLOGIES

Languages: Python, Go, JavaScript, Java, C, C++

Frameworks & Libraries: Node.js/Express, React Native, React, Django, Flask, Socket.IO, PyTorch, TensorFlow, Scikit-Learn, NumPy, Pandas, OpenCV, Selenium, BeautifulSoup

Databases: PostgreSQL, MySQL, MongoDB

Cloud & DevOps: AWS (CloudWatch, S3, DynamoDB, Fargate), Firebase, Git, Linux