

Rajvardhan Patil

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EDUCATION

University of Colorado, Boulder (CU Boulder)

Master's in computer science
Coursework: Quantum computing, Database systems, Data mining, Neural Networks, Deep Learning, Big Data Architecture.

Colorado, U.S.A.
August 2025 - May 2027

Vellore Institute of Technology, Vellore (VIT)

Bachelor's in computer science and engineering; GPA: 3.4
Coursework: Data structure algorithms, Theory of computation, Design and analysis of algorithms, Software engineering

Tamil Nadu, INDIA
July 2021 - May 2025

EXPERIENCE

University of Colorado (ICS Department)

Full Stack Developer

Boulder, CO, USA
May 2026 - Present

- Resolving critical bugs and optimizing performance across the VerbNet and UMR project websites, improving platform stability for a large-scale English verb lexicon used in NLP research worldwide.
- Building and maintaining backend services using Python and Flask, enhancing API reliability and data processing pipelines for VerbNet's syntactic-semantic verb class database.
- Integrating HTML, CSS, and JavaScript with MongoDB to improve frontend responsiveness and database query efficiency across both the VerbNet and UMR platforms.
- Collaborating with cross-functional research teams to implement new features based on structured user feedback, supporting downstream NLP applications including word sense disambiguation and semantic role labeling.

University of Colorado (CEAE Department)

Software Engineering Student Assistant

Boulder, CO, USA
March 2026 - Present

- Developing a full-stack web application for building energy audit analysis, converting a PyQt5 desktop tool into a browser-accessible platform serving engineers and energy consultants across multiple commercial building projects.
- Engineering a RESTful API backend using FastAPI wrapping a Python energy modeling engine (change-point inverse models, Building Load Coefficient analysis, EEM savings calculations), enabling asynchronous execution of long-running NOAA weather fetch and EEM analysis jobs.
- React + TypeScript frontend with Plotly-powered interactive charts (psychrometric, end-use breakdown, measure ROI rankings), replacing 78-field PyQt5 forms with a tabbed, validated web UI.

Walstar Technologies

Software Engineering Intern

Kolhapur, MH, India
August 2023 - October 2023

- Engineered end-to-end development of a rural dairy automation app used by 5+ cooperatives, reducing manual operations by 40% and saving each cooperative approximately 7 hours per week.
- Architected and prototyped UI/UX in Figma, Flutter frontend for android with 95% UI test coverage; integrated with scalable Laravel backend.
- Achieved robust REST APIs using PHP and MySQL, achieving 99.8% uptime and preventing data loss during testing, which facilitated reliable data transmission for end users.

Valsco Technologies

Software Engineering Intern

Vellore, TN, India
May 2023 - July 2023

- Programmed and validated push notification workflows and in-app navigation flows, increasing feature adoption by 12%.
- Initiated to 4+ new features for the Jurident by implementing Flutter widgets, authentication workflows, and API integrations, increasing user session time by 18%.

VOLUNTEER

Computer Association of Kolhapur (CAK)

Software Developer

Kolhapur, MH, India
January 2026 - Present

- Designed and built a full-stack membership portal handling new registrations and renewals, replacing a manual process with a multi-step digital onboarding flow covering personal, business, and payment details.
- Integrated Razorpay payment gateway with automatic PDF receipt generation using ReportLab, triggering membership activation and expiry extension upon successful payment confirmation.
- Built a JWT-secured admin dashboard exposing real-time membership stats (active, pending, expired, revenue) and a bulk Excel import pipeline that parses, validates, and deduplicates member records before inserting them into the database.

Konark Computers

Software Engineering Intern

Kolhapur, MH, India
January 2025 - May 2025

- Collaborated a project to automate the resolution of 5 common networking issues through scripting, which boosted self-service adoption rates by reducing reliance on manual intervention.

- Implemented telemetry dashboards using Grafana for real-time monitoring of LAN/WAN performance, enabling data-driven optimization that improved application response times by 20%.
- Revamped the maintenance schedule for 12 high-volume printers, focusing on paper feed mechanisms and toner replacements, which cut printer-related service requests by 45%.

VinnovateIT

Application Developer Lead
Senior Core Member

Vellore, TN, India

December 2023 - December 2024
November 2022 - November 2023

- Teamed Bunkbuddies website functionality using React, and redesigned UI with Figma, improving user engagement by 35% and reducing development time by 20% through reusable component design.
- Leveraged AI coding assistants (GitHub Copilot) to accelerate development velocity by 30% while maintaining code quality standards through structured code review processes.
- Implemented comprehensive end-to-end testing strategies for the MESSIT application and drove code maintenance initiatives, which improved code quality, leading to a 10% decrease in recurring bug reports.

PROJECTS

- **Manter** ([link](#)): AI-powered dating app built for women's priorities, featuring a 23 quality character framework where men are evaluated through open-ended scenario questions analyzed by Claude AI eliminating identity faking. Includes real-time red flag detection on chat messages, compatibility scoring based on women's custom priorities. Tech: React Native (Expo), Node.js, PostgreSQL, Socket.IO, Claude AI, and AWS S3.
- **Buff Bites** ([link](#)): AI-powered dining companion for CU Boulder that generates personalized, macro-balanced meal combos from daily dining hall menus, with a community feed for sharing and upvoting combos and a trends leaderboard. Reached 50+ users within the first day of launch. Tech: Next.js, React, FastAPI, MongoDB, Firebase Auth, Claude LLMs (structured output), and automated daily menu scraping via GitHub Actions.
- **GradBro** ([link](#)): AI-powered Statement of Purpose (SOP) editor with ideation, writing assistance, and review features for college application essays. Supports 1500+ users. Tech: Next.js, React, LLMs, AWS CloudFront, and real-time text analysis.
- **Gradmits** ([link](#)): Complete graduate admissions toolkit providing personalized university recommendations, application tracking, and consulting services for US Master's programs. Tech: Next.js, React, Tailwind CSS, AWS, LLM's, FastAPI and MongoDB.
- **Saber** ([link](#)): Full-stack building energy audit platform that guides users through a multi-step audit workflow — geometry, envelope, HVAC, equipment, and ECM selection and runs change point analysis on utility data to generate energy conservation measure reports with PDF export. Tech: Next.js 14, React, TypeScript, Tailwind CSS, FastAPI, Python, Pandas, SciPy, Matplotlib, and REST API architecture.
- **CAK Membership Portal** ([link](#)): Built a full-stack membership management system for the Computer Association of Kolhapur, featuring multi-step onboarding with GST certificate and photo uploads to Supabase Storage, Razorpay payment integration with automated PDF receipt generation, and a JWT-secured admin dashboard with bulk Excel member import. Tech: Next.js, TypeScript, Tailwind CSS, FastAPI, PostgreSQL, SQLAlchemy, Supabase, Razorpay.
- **Pumped Up Kicks** ([link](#)): AI-powered lecture intelligence platform that converts video lectures into searchable, timestamped transcripts with conversational Q&A and instant navigation to relevant moments. Tech: React, TypeScript, FastAPI, Python, RAG, Vector Database (ChromaDB), LLMs (Ollama), Whisper STT, and microservice architecture.
- **Redbro** ([link](#)): Built Reddit marketing automation system for AI video SaaS, featuring high-intent post discovery engine with ML-based intent scoring, multi-account management with rate limiting, and automated engagement workflows. Tech: Python, PRAW, PostgreSQL, Redis, OpenAI API, Docker.
- **Messit** ([link](#)): Implemented and refined real-time push notifications for MessIt's menu updates, which directly contributed to a 10% increase in user engagement with daily menu options. Tech: React, Node.js, MongoDB, Redux, Firebase push notifications.

RESEARCH

- **Smart refrigerator model for food safety and health promotion** ([link](#)): Developed a smart refrigerator model leveraging YOLOv10 for real-time food identification, freshness monitoring, and spoilage detection, achieving 97.5% accuracy. Integrated an Android application to alert users on item replenishment and deliver dietary recommendations based on consumption patterns. Published in *AIP Conference Proceedings*, Volume 3388. Tech: YOLOv10, Python, Android, OpenCV, IoT sensors.

SKILLS

- **Frameworks:** Node.js, React.js, Next.js, Redux, Express.js, FastAPI, Laravel, Flutter, MongoDB, PostgreSQL, MySQL, GraphQL, Firebase, Tailwind CSS.
- **AI/ML:** scikit-learn, TensorFlow, RAG, LLMs (GPT, Claude, Ollama), Vector Databases, GitHub Copilot, Claude Code.
- **Tools:** Git, AWS (S3, CloudFront, Lambda), Docker, REST APIs, Linux, Postman, Figma, GitHub Actions, Vercel, Grafana, Cypress, Jest, LiveKit, Whisper STT, MediaPipe.
- **Skills:** Agile, SCRUM, SDLC, CI/CD, Microservices, gRPC, RESTful APIs, Telemetry & Observability, Real-time Analytics, UI/UX Design, Test-Driven Development.
- **Languages:** JavaScript (ES5/ES6), TypeScript, Python, Java, HTML, CSS, PHP.