

Sharath Kumar Karnati

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SUMMARY

Software Engineer with an M.S. in Computer Science (AI & ML), May 2025 and 1+ years' experience designing and developing scalable full-stack applications. Strong foundation in object-oriented programming, data structures, and algorithms, with hands-on experience building secure, fault-tolerant REST APIs and end-to-end features using JavaScript, Python, and Java. Focused on delivering user-centric solutions in Agile, collaborative environments, with an emphasis on performance, reliability, and clean high-quality code.

TECHNICAL SKILLS

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

Frameworks: React, Node.js, Express, Django

Databases: PostgreSQL, MongoDB, MySQL, SQL

Cloud & DevOps: AWS (S3, EC2, Lambda), Kubernetes, Jenkins, Maven, CI/CD, Docker

Tools: Git, Postman, VSCode, GitHub, GitLab

Development Practices: Object-Oriented design, Agile/ Scrum, TDD, SDLC, SOLID, Microservices, Documentation, Design Patterns, REST APIs

PROFESSIONAL EXPERIENCE

Washington State University, Pullman, WA, *Research Assistant*

July 2025 – Present

- **Devised** Python (pandas, NumPy, matplotlib) and MATLAB scripts to **process** experimental datasets and **run** simulation models for studies on sustainable structural materials and life-cycle assessment.
- **Streamlined** recurring data cleaning and visualization; **produced** weekly summary tables/charts and **authored** step-by-step procedures to ensure reproducibility.

Washington State University, Pullman, WA, *Data Analytics - Peer Education Advisor*

September 2024 – May 2025

- **Designed** and **launched** a centralized mentor-tracking portal using internal tools; **streamlined** workflows and **reduced** administrative overhead by **60%**.
- **Automated** Excel/CSV reporting with validations and scheduled runs; **increased** accuracy by **85%** and **cut** manual work by **80%**.
- **Assessed** cohort trends and attrition signals; **advised** leadership on retention strategies for **30+** mentors; **prepared** concise dashboards and briefings for decisions.

Vengai Software Solutions, Hyderabad, India, *Software Developer Intern*

September 2022 – March 2023

- **Implemented** end-to-end features across React and Node.js; **produced** REST endpoints and responsive UIs that **increased** user engagement by **25%**.
- **Redesigned** authentication with JWT and guarded routes; **reduced** initial page load time by **30%** through render refinements and API batching.
- **Collaborated** in Agile sprints, **conducted** PR reviews, and **resolved** backend defects using Git and CI to **stabilize** releases.

PROJECTS

Regale – the Recipe App | MongoDB, Node.js, Express, React, JWT, REST

January 2025

- Deployed a full-stack recipe platform with real-time search over **100k+** curated meals and user submissions.
- Defined REST endpoints for search/auth/submissions and established server-side MVC with modular React components.
- Secured sessions with JWT; added dynamic ingredient scaling and user dashboards, increasing retention by **40%**

Stackr - A Dropbox-style File Manager | Typescript, Drizzle ORM, PostgreSQL

April 2025

- Produced folder-level uploads, previews, and secure sharing for PDFs/images with persistent sessions.
- Devised OTP login and **RBAC** via Clerk; refined media delivery with Image Kit and indexed queries, **reducing** load time by **50%**.
- Improved cross-session file accessibility and reliability through schema tuning and caching strategy.

Your DSA Buddy – AI chrome Extension | React, Gemini API, Javascript

July 2025

- Created a Chrome extension that offers progressive, language-specific hints for LeetCode problems using Gemini API.
- Combined real-time problem-page detection with an in-tab chatbot UI and a 30-minute focus timer to minimize context switching.
- Improved learning flow and on-task time by keeping guidance inline within the coding tab.

Intrusion Detection System using Machine Learning | Python, Scikit-learn, pandas, NumPy

December 2024

- Pioneered a machine learning-based IDS using NSL-KDD dataset using Random Forest, achieving 99.89% accuracy
- Assessed Logistic Regression, KNN, Decision Trees, XGBoost, and a baseline NN to select the best approach.
- Refined the feature space with PCA and applied SMOTE to improve interpretability and rare attack identification

EDUCATION

Master of Science in Computer Science - Washington State University | CGPA: 3.82/4.0

August 2023 – May 2025

B. Tech in Electronics and Communication Engineering -Vellore Institute of Technology| CGPA: 7.79/10

July 2018 – June 2022