

Kartikey Pandey

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SKILLS

Languages: Python, C/C++, JavaScript, Typescript, SQL (MySQL)
Frontend: React.js, Tailwind CSS, Material-UI, Bootstrap, EJS
Backend: Node.js, Express.js, FastAPI, LangChain, RESTful APIs, MVC Pattern
AI/ML: Generative AI, TensorFlow, OpenCV, Keras, NumPy
Database: MongoDB, MySQL
Tools & Platforms: Git, npm, Vercel, Render, Streamlit, Postman, Cloudinary

PROJECTS

- Insight Engine** | *RAG Pipeline API* July 2025
Hosted: **Website** Source Code: **GitHub**
- Engineered a high-performance **RAG API** using **FastAPI** and **LangChain** to answer natural language questions from large documents.
 - Implemented an advanced **fusion retrieval system** combining **keyword (BM25)** and **vector (Faiss)** search to **optimize accuracy**.
 - Built a robust backend capable of passing Level 4 competitive performance benchmarks in the Bajaj Finserv HackRx 6.0 hackathon.
- InvisiData** | *Python-based Steganography Tool* June 2025
Hosted: **Website** Source Code: **GitHub**
- Developed a **full-stack** web application with a **React + TypeScript** frontend and a **Flask** backend to hide and reveal secret messages in images.
 - Implemented the **Least Significant Bit (LSB)** algorithm in Python to manipulate image data at the **binary level** via a **RESTful API**.
 - Engineered a robust end-of-message delimiter to ensure **clean and accurate data extraction** from the images.
- Warden AI** | *CNN-Based Forest Fire Detection using Deep Learning* April 2025
Source Code: **GitHub**, **Colab**.
- Developed and trained a custom **Convolutional Neural Network (CNN)** with **TensorFlow** and **Keras** to detect forest fires from aerial imagery with **high accuracy**.
 - Preprocessed and augmented a dataset of over **750 images** using **OpenCV** to enhance model robustness and generalization.
 - Achieved **89% accuracy** on the validation set, demonstrating a strong practical application of computer vision for disaster management.

EXPERIENCE

- Cyber Security Intern** January 2025 – February 2025
IBM SkillsBuild
- Identified **5+** critical security flaws in simulated enterprise applications, including **SQL injection** and **Cross-Site Scripting (XSS)** vulnerabilities.
 - Developed and presented a comprehensive threat model for a new application feature, proposing **3 key security controls** to mitigate potential risks.
- Open Source Contributor** May 2024 – August 2024
GirlScript Summer of Code
- Authored and shipped a major optimization that reduced application page load time by a measurable **75%**.

EDUCATION

- REC Pratapgarh** Pratapgarh, India
B.Tech. in Computer Science and Engineering 2023 – 2027

ACHIEVEMENTS & CERTIFICATIONS

- Finalist, Reverse CodingX Competition** | *IIT Madras* January 2025
- Achieved a **finalist** ranking out of **1,841 national participants**, demonstrating advanced **algorithmic problem-solving** skills under competitive pressure.
- Tata Cybersecurity Analyst Job Simulation** | *Forage* February 2025
- Completed a comprehensive job simulation covering enterprise-level security protocols and vulnerability analysis.