

Ayush Kumar Rai

📍 Bengaluru, Karnataka

✉ Gmail

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📁 Portfolio

in LinkedIn

🐙 GitHub

About

Technical engineer with hands-on experience in machine learning, AI-driven security systems, and full-stack web development. Skilled in building end-to-end ML pipelines, real-time monitoring solutions, and responsive web applications. Experienced with Python, C++, SQL, C, React, OpenCV, and modern development workflows.

Technical Skills

- Languages:** Python, Java, C, C++, JavaScript.
- Libraries & Frameworks:** scikit-learn, NumPy, Pandas, Matplotlib, Seaborn, OpenCV, TensorFlow, LightGBM, Optuna, PCA, RFE, React.js, Next.js, Flask, Express.js.
- Cybersecurity & Networking Tools:** PyShark, ScaPy, Packet Sniffing, Network Traffic Analysiss.
- Database and Version Controls:** SQL, NoSQL (MongoDB), Git, Github.

Projects

- Adaptive AI-Powered Network Intrusion Detection System (NIDS)** [Link](#)
- Engineered an AI-based NIDS using CICIDS2018 and BCC-DARKNET2025 datasets, achieving **92.27%–96.53% accuracy** with an **F1-score of 1.0** across 18 attack classes.
 - Integrated real-time packet capture and analysis using **PyShark** and **ScaPy**, enabling live intrusion detection with a Flask-based monitoring dashboard.
 - Built a full ML pipeline with preprocessing, PCA/RFE-based feature selection, class balancing, and model optimization using LightGBM and SVM to improve detection performance and reduce false positives.
- FinWealth-next** [Live demo](#)
- FinWealth is a modern personal finance management web app built with Next.js, Clerk, Prisma, and Arcjet.
 - Tools:** Supabase, Arcjet, Javascript, Inngest, Gemini API, Prisma, REST, React, Html, Tailwind, ShadcnUI
 - It helps users securely manage accounts, track transactions, and visualize spending patterns through interactive charts. With secure authentication, bot protection, email notifications

Experience

- Machine Learning Intern** *Delhi, India*
- Skill Craft Technology* *Mar 2025 – Apr 2025*
- Completed 4 projects under guidance of mentors in field of Machine Learning using different libraries.
 - Achieved 92% (Cat-Dog), 89% (Hand Gesture), K=5 meaningful clusters, and $R^2 = 0.87$ in house price prediction.
 - Used scikit-learn, OpenCV, NumPy, Pandas, Matplotlib, and Seaborn for preprocessing, model training, and evaluation.

Certifications

- AWS: Introduction to Amazon EC2** [Link](#)
- IBM: Artificial Intelligence Fundamentals** [Link](#)

Publications

- Adaptive AI System for Intelligent Network Threat Analysis and Security Monitoring** [Link](#)
- Authors:** Ayush Kumar Rai, Shrinivas Suresh Hegde, Vivek G., Dr. Priti Mishra
- 5th IEEE International Conference on Mobile Networks and Wireless Communications (ICMNWC-2025)*, Sri Siddhartha Institute of Technology (SSIT), Tumkur.
- Computational Intelligence Strategies for Real-Time Security Operations** [Link](#)
- Authors:** Ayush Kumar Rai, Shrinivas Suresh Hegde, Vivek G., Dr. Priti Mishra
- IEEE International Conference on Smart Futuristic Technology (ICSFT-2025)*, Ghousia College of Engineering, Bengaluru.

Education

- Sai Vidya Institute of Technology** *2022 – 2026* **Cgpa:**
- BE in Computer Science (Artificial Intelligence and Machine Learning)* **9.0/10**