

Ayush Kumar Rai

📍 Bengaluru, Karnataka 📧 Gmail 📞 7619506130 💼 Portfolio 💬 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 Analysis.

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