SUMIT PRASAD SAH

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OBJECTIVE

Computer Science graduate with research experience in machine learning and cybersecurity. Published author and patent holder with IEEE papers in intrusion detection and AI applications. Seeking graduate opportunities to advance research in AI-driven cybersecurity, threat detection, and secure systems.

EDUCATION

C.V. Raman Global University — Bhubaneswar, Odisha
Bachelor of Technology in Computer Science and Engineering — **CGPA: 8.69/10** — 2020–2024

Kathmandu Model Secondary School — Kathmandu, Nepal
Senior Secondary — **CGPA: 3.53/4** — 2018–2020

PUBLICATIONS

- **Advancement in Virtual Fitting Rooms: Integrating AI for Enhanced Online Shopping Experiences**
  Conference: 15th IEEE ICCCNT 2024
  Date: 24–28 June 2024
  Published in IEEE Xplore: 04 Nov 2024
  DOI: 10.1109/ICCCNT61001.2024.10724276

- **Optimizing XGBoost Hyperparameters for Network Intrusion Detection**
  Conference: IEEE ICCCSMD 2024, Chennai, India
  Date: 19–20 Dec 2024
  Published in IEEE Xplore: 28 Aug 2025
  DOI: 10.1109/ICCCSMD63546.2024.11015173

RESEARCH & ACADEMIC PROJECTS

Optimizing XGBoost Hyperparameters for Network Intrusion Detection

- Optimized **XGBoost hyperparameters** using grid search and early stopping, achieving **92% accuracy** on the UNSW-NB15 dataset.
- Enhanced model performance by improving precision, recall, and F1-score through targeted feature selection.
- Preprocessed network traffic data to handle class imbalance and ensure robust intrusion detection.

Cloth Try-on

- Engineered a **deep learning-powered virtual try-on system** utilizing OpenPose, U2-Net, and ResNet-101 for segmentation and fitting.
- Implemented a **user-friendly interface** enabling users to upload images and virtually try on clothing.
- Achieved high accuracy in garment segmentation and fitting, significantly enhancing realism.

Chicken Disease Detection

- Developed a CNN for Coccidiosis detection that achieved **95% accuracy**.
- Integrated a CI/CD pipeline for maintainability and scalability.
- Successfully tested on AWS with stress testing and cloud optimization.

HealthGuard: IoT-Based Health Monitoring System

- Built a **real-time IoT-based system** to monitor vitals such as heart rate, temperature, and oxygen levels.

- Designed a **dashboard** for visualization and alerts to enable proactive healthcare.
- Implemented **secure data protocols** for privacy and reliability.

PATENTS

- **HealthGuard: IoT-Based Health Monitoring System**
  Application No: 202441070524 A Patent Number: 40/2024
  Inventors: Geetha S K, Biki Kumar Sah, Preety Chaursaiya, D. S. Miruthusel Varaj, Sumit Prasad Sah
  Filed On: September 18, 2024 Granted On: October 4, 2024
  Patent Link: Official IPO Journal
  Backup Link: Google Drive (Full PDF)

PROFESSIONAL EXPERIENCE

Bajra Technologies *Nov 2024 – Feb 2025*
Trainee – Ruby on Rails (ROR)

- Developed a Series Streaming Platform with role-based access control and secure authentication using Devise.
- Integrated Stripe Payment Gateway for PCI-compliant one-time payments.
- Implemented Real-Time Notifications via Action Cable; optimized video handling with Active Storage.
- Enhanced UX with Stimulus.js + Tailwind CSS, delivering a responsive, modern interface.

TECHNICAL SKILLS

Cybersecurity:	Network Security, Intrusion Detection Systems (IDS), Role-Based Access Control (RBAC), Secure Authentication, PCI-Compliant Payments
Machine Learning & AI:	Anomaly Detection, Feature Engineering, Hyperparameter Optimization, Model Evaluation (Accuracy, F1, AUROC)
Frameworks & Libraries:	PyTorch, Scikit-learn, XGBoost, Pandas, NumPy, Matplotlib
Programming:	Python, Java, SQL, Ruby
Tools & Platforms:	Git/GitHub, Docker, AWS (EC2, S3, VPC)

CERTIFICATIONS

- Cisco Python Essentials 1 *Issued Jul 2023*
  Credential: Cisco Credly Link
- Cisco Networking Basics *Issued Jun 2023*
  Credential: Cisco Credly Link
- AWS Educate: Introduction to Cloud 101 *Issued Oct 2022*
  Credential: AWS Credly Link