ADRITEYO DAS

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EDUCATION

Manipal Institute of Technology, Manipal, Karnataka 2023 – 2027
Bachelor of Technology — Computer and Communication Engineering
CGPA: 9.47 *(Top 3 in ICT Department)*

Delhi Public School Ruby Park, Kolkata 2021 – 2023
Class XII (CBSE) — 95.2%
House Prefect, Tech Club Core Member

SKILLS

Languages	Python, C/C++, Java, JavaScript, SQL, Bash, HTML/CSS, LaTeX
Frameworks	PyTorch, Hugging Face Transformers, Flask, React.js, OpenCV, OpenLayers, Docker, WebSockets
AI/ML	Computer Vision, NLP, GANs, XGBoost, BERT, CNN, Transfer Learning, Feature Engineering
Cybersecurity	Volatility, Wireshark, IDA Pro, Ghidra, Binary Analysis, Reverse Engineering, Digital Forensics
Tools	Git, MySQL, JWT, Redis, Prophet, Streamlit, CUDA, PyTorch AMP, REST APIs

ACHIEVEMENTS

- **Ranked #1 CTF team nationally** in 2025 and #3 in 2024 on ctftime.org as part of Team Cryptonite.
- **1st Position:** EnigmaXplore 2024 CTF (IIIT Naya Raipur), BITSCTF 2024 (BITS Goa), CruXipher 2024 (BITS Hyderabad), KashiCTF 2025 (IIT BHU Varanasi).
- **2nd Position:** TexSAW CTF 2025 (University of Texas Dallas), BITSCTF 2025 (BITS Goa), CapturePoint CTF 2025 (IIIT Vadodara), ExploitXCTF 2025 (EC-Council & KPRIET) - **Best Individual Performance Award**.
- **3rd Position:** Codefest CTF 2025 (IIT BHU), EHAX CTF 2025 (DTU Delhi), FooBar CTF 2025 (NIT Durgapur).
- **Top 3 Academic Performance** in ICT Department with CGPA 9.47/10.0 and awarded Acheiver's Scholarship

EXPERIENCE

Research Intern *February 2025 – Present*
Computer Vision and Pattern Recognition Unit, Indian Statistical Institute *Kolkata, India · On-site*

- Working with **Dr. Umapada Pal** and **Dr. Shivkumar** (University of Salford) on deepfake detection using CNNs with frequency-domain features (DCT, FFT, entropy analysis).
- Building robust detection pipeline leveraging **PyTorch AMP, CUDA optimizations**, and handcrafted feature fusion for real-time inference.
- Implementing state-of-the-art adversarial robustness techniques and multi-scale feature extraction methods.

UG Research Assistant *July 2024 – Present*
Manipal Institute of Technology *Manipal, Karnataka, India · On-site*

- Collaborating with **Dr. Nisha P. Shetty** on explainable AI (xAI), NLP, and computer vision research projects.
- Built multimodal disease classifier using **image-text fusion architecture**; achieved **92% accuracy** with attention mechanisms.
- Proposed and implemented intent classification system on social media data using **BERT/Electra/DistilBERT**; **AUC-ROC: 0.9618**.
- Co-authoring paper on **explainability in lesion classification** (under review at top-tier conference).

Team Member & AI Research Domain Mentor *January 2024 – Present*
Cryptonite *Manipal, Karnataka, India · On-site*

- Extensively competed in CTFs specializing in **Digital Forensics and Incident Response, Network Security**, and **AI Security**.
- Part of Research team focusing on **AI and Cybersecurity** intersection, developing novel attack and defense mechanisms.
- Team ranked **#1 nationally** in 2025 and #3 in 2024 on ctftime.org, **#1 in Asia** as per CTFtime rankings.
- Created 2 challenges for niteCTF 2024 - **3rd highest rated Indian CTF** on ctftime.org with 39.87 points, sponsored by **IITB Trust Lab**.
- Currently mentoring junior members as **AI and Research Domain mentor**, training next-generation research professionals.

Volunteer Developer *January 2025 – July 2025*
Open Horizon Robotics (MapMIT Project) *Manipal, Karnataka, India · Remote*

- Developed real-time **3D interactive campus mapping system** using OpenLayers.js with **REST API integration**.
- Implemented dynamic UI filters, responsive map cards, and **geospatial data overlays** for enhanced user experience.
- Optimized rendering performance using **WebGL acceleration** and efficient data caching strategies.

PROJECTS

- **ChiefWarden: Enterprise-Grade Hybrid Malware Detection System** *March 2025*
  Python, PyTorch, XGBoost, PE Analysis, Static Analysis, Binary Classification
  - CLI-based hybrid detection engine combining **static PE feature extraction** with **XGBoost + MLP ensemble**; achieved **98.89% accuracy**.
  - Extracted 68+ static features including **import analysis, entropy calculation, section parsing**, and **API call graphs**.
  - Implemented **tiered malware severity classification** with threat intelligence integration and **YARA rule matching**.
- **SimuTrade: Real-Time Stock Market Trading Simulator** *July 2025*
  React.js, Flask, MySQL, JWT, Prophet, yFinance, REST APIs, Docker
  - Built full-stack trading simulator with **JWT-based authentication**, secure role separation (RBAC), and modular backend architecture.
  - Integrated **real stock data using yFinance API** with **Prophet forecasting models** for predictive trend analytics.
  - Implemented **custom caching layer** to reduce external API calls and improve performance.
  - Developed **portfolio tracking**, PnL computation, and a dynamic **community shop** with gamified rewards and scoring system.
  - Built learning center with curated **financial literacy content**, and **leaderboard system** based on wealth and community engagement.
  - Deployed using **Docker**, tested and documented all routes with Postman, and architected for frontend-backend separation.
- **GAN-based Damaged Camera Image Reconstruction System** *December 2023*
  PyTorch, GANs, Computer Vision, Adversarial Training, Perceptual Loss
  - Trained advanced GAN architecture with **adversarial + perceptual + pixel-wise loss functions** for restoring corrupted driving scenes.
  - Achieved high **PSNR/SSIM scores** on test datasets using **U-Net generator** and **PatchGAN discriminator**.
  - Deployed production-ready **Streamlit UI** with **real-time inference** and batch processing capabilities.
- **Optimarket: AI-Powered Customer Segmentation & Targeting Platform** *October 2024*
  LLMs, Streamlit, KMeans, PCA, Fine-tuning, Natural Language Generation
  - Streamlit-based AI system using **fine-tuned LLMs** for consumer profile clustering and **personalized product targeting**.
  - Integrated **unsupervised clustering (KMeans, PCA)** with **natural language generation** for actionable business insights.
  - Implemented **RFM analysis, cohort analysis**, and **customer lifetime value prediction** with automated reporting.
- **DropLAN: Local Network File & Note Sharing Platform** *July 2025*
  Flask, WebSockets, React/Vite, Docker, File I/O, Socket.IO, LocalStorage, SHA-256
  - Built full-stack LAN-based sharing tool for **real-time two-way transfer of files and notes** between devices on the same network.
  - Implemented **temporary Buckets with 30-min expiry**, hashed uploads (SHA-256), and live sync using **WebSockets via Socket.IO**.
  - Added **QR-based portal access**, automatic IP detection, and persistent notepad using **localStorage autosave**.
  - Deployed with a custom CLI command `DropLAN` for 1-click browser launch; designed with a **minimalist monospace UI and animations** and runs via Docker.

This resume was last updated on 2025-07-09.