

Jitraj Esh

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Anvil 2026 × Scaler -- Top 20 / 3,200 · Meta AI × HuggingFace OpenEnv -- Finalist / 32,000+ · ICCI 2026 Published · CGPA 8.97

First-year BCA (Cybersecurity) student with a published research paper (ICCI 2026) and hands-on ML research projects across reinforcement learning, anomaly detection, and associative memory systems. Interested in ML research, generative AI, AI safety, and systems optimization. Seeking to contribute to large-scale research problems at Google.

SKILLS

Core CS: Data Structures & Algorithms · OOP · Operating Systems · DBMS · Computer Networks · System Design · Software Engineering · Distributed Systems · Problem Solving (Java)

Programming Languages: Java · Python · TypeScript · Rust · SQL

Technologies: Docker · Kafka · FastAPI · Flask · Django · PostgreSQL · Redis · Kubernetes · Git · GitHub · CI/CD · GitHub Actions · Azure · Prometheus · Grafana · Spring Boot

ML & Security: PyTorch · Scikit-learn · XGBoost · Deep Learning · LSTM · GRPO/RL · QLoRA · Random Forest · Isolation Forest · SHAP · Statistical Modeling · MITRE ATT&CK · SIEM · Threat Detection · VAPT · Data Science · Machine Learning

WORK EXPERIENCE

Event Operations & Data Management Volunteer - Kristu Jayanti University

Jul 2025 - Present

- ▶ Reduced attendee onboarding wait times by **30%** across **1,500+** records by automating verification pipelines and coordinating a **10**-volunteer data-processing team.
- ▶ Delivered analytics dashboards synthesising operational metrics across **6** event categories - adopted by the organising committee to directly inform planning for **2** subsequent events.
- ▶ Cut certification turnaround by **35%** for a **60**-student cohort by owning the end-to-end pipeline across **5 platforms** (Cisco NetAcad, Infosys Springboard, Oracle, MongoDB, NASSCOM).

Data & Reporting Analyst (Volunteer) - Child Cancer Trust (NGO) · Remote

Jan 2025

- ▶ Built Tableau dashboards tracking donor engagement across **3** social platforms, surfacing campaign performance metrics that directly supported leadership reporting and outreach decisions.

PROJECTS

RiskEngine-Java | Java 21 · Spring Boot · Kafka · ONNX Runtime · TimescaleDB · Docker · github.com/Fnc-Jit/RiskEngine-Java

May 2026

- ▶ Achieved **sub-50ms p99** latency on a realistic financial event simulation pipeline by designing a Java **21** risk engine with Kafka ingestion, ONNX anomaly inference, and TimescaleDB persistence.
- ▶ Built ScenarioForge to simulate market regimes, volatility shocks, and anomaly bursts, generating reproducible financial event streams for benchmarking risk monitoring and stress-testing workflows.
- ▶ Validated system correctness across **112+** test cases using JUnit and Testcontainers; automated CI via GitHub Actions, catching regressions across pipeline runs with zero build failures.

God's Eye | Rust · Kafka · ClickHouse · TimescaleDB · ML Ensemble · Docker · github.com/Fnc-Jit/Ge-SensorGodsEye-Collection-Program

2025 - Present

- ▶ Investigated high-fidelity network intrusion detection at scale; designed and evaluated a Bayesian ensemble (XGBoost + Autoencoder + LSTM + Sigma rules) against CICIDS-2018 and DARPA benchmarks, achieving **≥88%** precision at **≤5%** FPR - contributing a reproducible evaluation harness for SIEM research
- ▶ Designed and implemented a GEQL temporal query engine and UEBA drift detection layer; automated MITRE ATT&CK kill-chain reconstruction for incident response research
- ▶ Reduced compliance manual review overhead by **60%** by building a real-time alerting engine that automates ISO **27001**, NIST CSF, and PCI-DSS audit reporting.

MissionCtrl — LLM Fleet Overseer | GRPO · QLoRA · PyTorch · FastAPI · Docker · TRL · <https://github.com/Fnc-Jit/MissionCtrl-AI-Oversight-System>

Apr 2026

- ▶ Investigated hallucination detection in LLM fleets as an NLP research problem; designed a **5**-signal composite reward for GRPO fine-tuning (RLHF-adjacent reward modeling) across a **5**-agent fleet and **10** hallucination-injection categories; fine-tuned Qwen2.5-0.5B via QLoRA (**1.75%** trainable params) on Kaggle T4×2
- ▶ Achieved **near-zero false positives** on easy-tier triage benchmark vs. **70B** zero-shot at **135×** smaller param count; **112** unit tests, full CI/CD, deployed on HuggingFace Spaces
- ▶ Policy-updated **8B** model scored **0.70** vs. **0.65** for the **70B** baseline - demonstrated parameter-efficient RL outperforms zero-shot scale; open-sourced as an AI reliability and safety research contribution with full reproducibility harness

CloudFinOps-RL-Environment | Python · FastAPI · Docker · Pytest · LLM Inference · Reinforcement Learning · github.com/Fnc-Jit/CloudFinOps-RL-Environment

Mar 2026

- ▶ Designed a multi-objective RL environment modelling cost, SLA, and carbon reduction; evaluated Llama 4 Scout **17B** across **4** difficulty tiers - achieving **0.999** (Easy), **0.949** (GreenOps), and **0.700** (Hard) reward scores.
- ▶ Implemented **84** unit tests with hash-seeded deterministic noise for reproducible benchmarking; Docker-containerised evaluation with full GitHub Actions CI/CD.

Malware Threat Scoring Engine | Python · Flask · Scikit-learn · Random Forest · Isolation Forest · SHAP · github.com/Fnc-Jit/Malware-Threat-Scoring-Engine

Feb 2026

- ▶ Engineered **0-100** composite scorer (ML **70%** + anomaly **20%** + entropy **10%**) with SHAP-based feature attribution across **9** malware indicators — enabling explainable threat scoring across Safe, Suspicious, and Malicious categories; **100%** accuracy on **200K** held-out samples from **1M+** synthetic corpus

RESEARCH

Query-Conditioned Precision Control for Frozen Associative Memory (PCAM)

Apr 2026 · Manuscript in Preparation

- ▶ Hypothesis: precision in associative memory retrieval can be modulated via query conditioning without retraining frozen weights; proved **90/90** benchmark structurally unreachable
- ▶ Conducted ablation experiments across **5 seeds** with **zero regressions**; achieved max retrieval (**70/70**), $\Delta=+0.124$ over baseline - statistical validation confirms rank-1 diagonal ceiling per Theorem **F3**

Invasive Brain-Computer Interfaces: Advancements, Challenges & Societal Considerations

ICCI 2026 · Jan 2026

- ▶ Led literature synthesis and threat modeling for a published paper on cybersecurity in invasive BCIs - mapped attack surfaces across **5+** neural device domains including firmware, RF communication, and cloud backends; sole student author, published at ICCI **2026** during first year of undergraduate study

EDUCATION

Kristu Jayanti University | Bachelor of Computer Applications (Cybersecurity) - Computer Science

Jul 2025 - Present · Bengaluru

CGPA: 8.97 · Published at ICCI 2026 · Computer Academy member · Class Certificate Representative

Aditya Academy Senior Secondary | Higher Secondary

Graduated Apr 2025 · Kolkata

CGPA: 8.32 · Tech Club — CTF competitions · LeetCode DSA practice · independent cybersecurity projects

CERTIFICATIONS

Google Cybersecurity Professional · IBM Cybersecurity Analyst · Cisco NetAcad Essentials · NASSCOM · Infosys Springboard · Oracle · MongoDB