

Girish Kulathumani

[GreyLattice: Publication](#) | girish.kulathumani@gmail.com | [linkedin.com/in/girish-kulathumani](https://www.linkedin.com/in/girish-kulathumani) | github.com/Girish-K01

EXPERIENCE

- Independent Project Lead - Federated Learning AI** Jan 2025 – May 2025
Vellore Institute of Technology (via NVIDIA DGX) Chennai, India
- Led 3-member team building a federated multimodal ML framework (87.65% wildlife audio, 69.92% visual recognition) on datasets of 18.2K spectrograms & 50K images
 - Achieved 5% accuracy gain over centralized training using <2MB MobileNetV3/SqueezeNet models, deployed via containerized Flower pipeline with multi-GPU CUDA workflows and custom Docker provisioning
- Research Assistant - Secure AI Systems & Cryptography** Jan 2024 – May 2024
Vellore Institute of Technology Chennai, India
- Co-authored 2 peer-reviewed papers: JIGS (96.67% speedup via parallelized ECDH/AES-128 pipeline) and Siren (ML-driven honeypot with TCP sockets, simulated user activity, and probabilistic encryption)
 - Designed modular Python cryptographic architecture and integrated deception-based threat engagement for adaptive cybersecurity research
- Data Science & ML Extern** Aug 2023 – Nov 2023
Google Developers x SmartBridge Remote
- Built real-time weapon detection system using YOLO + Flask; optimized TensorFlow inference for webcam-based classification

TECHNICAL SKILLS

Languages: Python, C++, Java, JavaScript, TypeScript, SQL
ML & Data Science: PyTorch, TensorFlow, scikit-learn, HuggingFace, OpenCV, YOLO, pandas, NumPy, RAPIDS
Frameworks & Tools: FastAPI, Flask, React, Apache Kafka, Apache Spark, Docker, Git
Databases & Infrastructure: PostgreSQL, MySQL, NVIDIA NGC catalog, Linux, SSH, Docker Compose

PROJECTS

- GPU-Accelerated Financial Sentiment Pipeline** | *RAPIDS, Apache Kafka, Spark* Jan 2024 – Apr 2024
- Processed high-volume financial news streams with Apache Kafka and GPU-accelerated cuDF on RTX 2060
 - Reduced sentiment analysis latency from 8 minutes to 10 seconds using multiprocessing and RAPIDS
 - Integrated pretrained FinBERT model for real-time sentiment scoring, containerized with Docker
- LSTM Time-Series Forecasting for Mutual Funds** | *PyTorch, LSTM, TA-Lib* Jan 2024 – Apr 2024
- Built ML pipeline integrating live NAV API data with S&P BSE Tech index for next-day forecasting
 - Engineered 15+ financial features (RSI, MACD, Bollinger Bands, CAPM metrics) achieving MAE 0.3-0.8
 - Applied sliding window preprocessing and feature selection using mutual information scoring
- Enterprise Banking System (Full-Stack)** | *FastAPI, PostgreSQL, React, Docker, JWT* May 2025 – Present
- Developing REST API with FastAPI and SQLAlchemy ORM for role-based access and ACID-safe transactions
 - Building React + TypeScript frontend with Material UI, JWT authentication, and Axios interceptors
 - Containerized with Docker Compose, CI/CD via GitHub Actions, 85% test coverage with pytest

PUBLICATIONS & ACHIEVEMENTS

- JIGS: Modular Parallel Encryption Pipeline** - IOP Engineering Research Express 2024
Hybrid ECDH-AES messaging architecture with modular design achieving 96.67% speedup through parallelization
- Siren: Adaptive Cybersecurity via Deception** - Springer LNNS CompCom 2025 2025
ML-integrated honeypot system with simulated user interactions and probabilistic encryption for threat engagement
- GreyLattice – Independent Neurotechnology Publication** 2024 – Present
Published 5+ longform technical articles on computational neuroscience, including a 50-minute breakdown of brain decoding research
- Certifications:** Azure AI Fundamentals, Google Advanced Data Analytics, Google Cloud Digital Leader
Leadership: Technical Speaker (CUDA Seminar, 50+ attendees), Social Media Manager at VIT Startup Centre

EDUCATION

- Vellore Institute of Technology** Chennai, Tamil Nadu, India
Bachelor of Technology in Computer Science Engineering, CGPA: 8.69/10 Aug 2021 – May 2025