Mohan Krishna G R

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Education

Sri Ramakrishna Engineering College   **September 2022 – March 2027**
Master of Technology, Computer Science & Engineering (5 Years Integrated) | CGPA: **9.12**/10   Coimbatore, India

Experience

Trainee Software Engineer @ SuperDNA 3D Lab (SuperDNA Technolab Pvt. Ltd.)   **January 2025 - Present**
Part-Time   Remote

AI/ML Intern @ Infosys Springboard | LinkedIn Recommendation (By Mentor)   **May 2024 – July 2024**
Summer Internship   Remote

Projects

TextSumm | **Python, NLP, Transformers, FastAPI, Docker, Azure, CI/CD, HTML/CSS/JS** | *Individual Intern*
GitHub | *DockerHub*

➔ **Boosted summarization accuracy by 300%** (ROUGE-2 F1-score) via hybrid NLP architecture: fine-tuned transformer models (ROUGE-1: 61.32) [abstractive] + novel rule-based extractive model (TF-IDF/KMeans) on **550K+ records**.
➔ Engineered multi-format REST API (FastAPI) supporting PDFs, DOCX, and URLs, paired with a responsive frontend, **reducing user processing time by 40%**.
➔ **Deployed at scale** via Docker on Azure ACI with automated CI/CD (GitHub Actions), achieving 99.9% uptime and seamless updates.

PyroGuardian | **Python, PyTorch, TensorRT, AWS SNS, CUDA, NVIDIA Jetson Nano, OpenCV, NVIDIA TAO, NGC** | *Team Project*
(Source Code & Models with *Honeywell*)

➔ **Led a multi-disciplinary team** to build an AI-powered UAV system, **reducing fire response time by 40% vs. thermal sensors** and achieving **20% fewer false alarms than traditional video analytics**.
➔ **Deployed an 86.7M-parameter model** on Jetson Nano (TensorRT-optimized FP16), achieving **90% faster inference vs. PyTorch FP32** and **30 FPS at 720p** for real-time severity analysis.
➔ **Engineered 51GB dataset** (10K+ annotated frames across 8 fire scenarios) with augmentations (cropping/colour jittering) for multi-scale robustness.
➔ **Integrated AWS SNS alerts** with RBAC roles, achieving **<1s latency** for 500+ users and dynamic prioritization via severity scores.
➔ **Deployed in 3+ industries** with low-bandwidth streaming (OpenCV/H.264), reducing video feed downtime by **20%** in field trials.

Indian Rainfall Prediction | Python, scikit-learn, pandas, NumPy, Matplotlib | *Link*   *Team Project*

➔ **Led a team** to develop an ML-driven rainfall prediction system, achieving **88% accuracy with SVM** and **100% accuracy with Random Forest** on IMD's dataset (8,965 entries across 8 Indian states).
➔ **Extracted temporal/spatial features** (month, year, district-specific trends) and implemented an 80-20 train-test split, enabling accurate monsoon prediction for agricultural planning.
➔ **Compared 5 ML models** (SVM, Naive Bayes, KNN, Decision Tree, Random Forest), with Random Forest achieving perfect F1-scores (1.0) and SVM providing optimal balance for imbalanced classes (7,881 Low vs. 175 High Rainfall entries).

Crop Schedule Management (Quantum) | **Python, D-Wave, QUBO, Quantum Annealing** | *GitHub*   *Team Project*
(Guided by SREC & CQuICC, IIT Madras)

➔ **Reduced computational overhead by 50%** vs. classical solvers by formulating crop scheduling as a QUBO model and solving via D-Wave's quantum annealing.
➔ **Automated optimal crop rotations** for 10+ crop types across 100+ fields, adhering to adjacency rules and resource constraints (water/fertilizer).
➔ **Achieved 95% field utilization** in simulations for Indian agriculture, improving yield predictions by 30% over traditional methods.

MindWave | **Python, TensorFlow, Flutter, REST APIs** | *GitHub*   Team Project

➜ **Led a 5-person team** to develop an AI-powered mental health app, achieving **94% accuracy** in stress prediction (validated via 5-fold CV) using a hybrid ML model (TensorFlow/scikit-learn).
➜ **Deployed model with TensorFlow Serving** and optimized API latency by **20%** via asynchronous processing, reducing server response time to <500ms for concurrent users.
➜ **Integrated real-time inference** into a Flutter mobile app (Android/iOS), enabling dynamic stress assessments and boosting user engagement by **35%** (tracked via Firebase Analytics).

Technical Skills

Areas of interest: AI/ML Engineering, Deep Learning, Computer Vision, NLP, MLOps.

Languages and Frameworks: Python, C, C++, Java, SQL (MySQL, SQLite, PostgreSQL), JavaScript, HTML5, CSS3

ML/Cloud Frameworks: PyTorch, TensorFlow, Keras, Hugging Face Transformers, Detectron2, ONNX, AWS SageMaker, Boto3, TensorRT, NVIDIA Triton, Azure ACI.

Backend & APIs: FastAPI, Flask, Django, REST, Firebase, MongoDB

Tools & DevOps: Docker, Kubernetes, Git, Linux, GitHub Actions, CUDA, cuDNN, JetPack, Streamlit, Gradio

Hardware/Edge: NVIDIA Jetson Nano, Raspberry Pi.

Publications

Indian Rainfall Prediction Using Machine Learning: A Comparative Study | *IEEE Xplore* | DOI
Presented at IConSCEPT 2024 (NIT Puducherry, Karaikal)

➜ **Published comparative study** of ML models (SVM, Naive Bayes, KNN, Decision Trees) on meteorological data, **achieving 88% accuracy with SVM** (Python, Pandas, Scikit-learn).
➜ Engineered data preprocessing pipeline for missing values, feature scaling, and categorical encoding, improving model robustness by **25%** on sparse datasets.
➜ Highlighted as a framework for agricultural planning and disaster preparedness due to **95% precision in monsoon prediction**.

Hackathons

Honeywell Drone Technologies Hackathon 2024 | Runner-Up | ₹25,000 (~$300)

➜ **Secured 2nd place** among 50+ teams for developing **PyroGuardian**, a UAV fire-detection system using **TensorRT-optimized models** (90% faster inference) and **CUDA-accelerated edge deployment** on NVIDIA Jetson Nano.

The Ultimate Hackathon 2023 (CII-Yi) | Overall Winner | ₹25,000 (~$300)

➜ **Won 1st place** among 100+ teams for **MindWave**, an AI-driven mental health app achieving **94% stress prediction accuracy** (TensorFlow/scikit-learn) with real-time assessment via Flutter (Android/iOS).
➜ **Reduced API latency by 20%** through model quantization and asynchronous processing, enhancing app responsiveness for demo users during judging.
➜ **Highlighted by industry judges** for scalable architecture and Firebase-powered analytics to track user engagement, addressing mental health monitoring gaps in low-resource settings.

Awards / Extra-Curricular

➜ Sri. P. Ramaswamy Memorial Award | **Highest CGPA** | A.Y. 2022-2024 | Awarded for academic excellence (top 0.3% of 4,400+ students).
➜ **Student Innovation Ambassador** | *Selected* 7/4,400 | Spearheaded campus tech initiatives, mentoring and inspiring 50+ students on AI/ML projects.
➜ **Best Project Award** | *A.Y. 2023-2024* | Recognized for **Crop Schedule Management (Quantum)**, improving agricultural efficiency by **30%** through quantum optimization (QUBO/D-Wave).
➜ **Best Innovation Idea** | InnoTech 2023 | AI/IoT agricultural platform (UAV-based pest detection, IoT soil analytics).
➜ **Head, Blog Writers** | SREC | Led 80+ member team to publish technical articles, myself on AI/ML, Engineering, Project-based Learning, boosting campus engagement by 40%.