MUDUNURI SEETA RAMA KARTHIKEYA VARMA

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SUMMARY

Machine Learning Engineer with expertise in developing AI-driven applications, fine-tuning models and optimizing performance using advanced techniques. Skilled in end-to-end project development, from model training to seamless deployment.

SKILLS

- **Machine Learning**: Supervised & Unsupervised Learning, Ensemble Learning, Model Evaluation & Tuning
- **Deep Learning**: ANN, CNN, LSTM, Transfer Learning Hyperparameter Optimization
- **Generative AI**: Quantization, LLMs / SLMs Fine-Tuning, RAG
- **Libraries and Frameworks**: LangChain, Pandas, NumPy, Matplotlib, Seaborn, SciPy, Scikit Learn, Keras, TensorFlow, OpenCV, Beautiful Soup
- **Tools**: Hugging Face, Power BI, Render, Docker
- **Programming Languages** : C, Python, Java, C++
- **Soft Skills** : Depth-oriented, Pragmatic, Self-motivated

EXPERIENCE

Machine Learning Intern

IIT TIRUPATI   **May 2025 – June 2025, Tirupati**

- Designed and implemented a hybrid CNN-LSTM model to predict milling forces from spindle current signals, reducing reliance on physical sensors by **30–40%.**
- Conducted systematic hyperparameter tuning, exploring variations in kernel size, filters, LSTM cell counts, and learning rates, leading to a **15%** increase in model accuracy.
- Trained a robust neural network to model non-linear and delayed relationships between current and force signals with Keras.

Generative AI Intern

Blackbuck Engineers   **June 2024 - July 2024, Online**

- Explored Convolutional Neural Network (CNNs) for image classification, focusing on feature extraction.
- Built and trained a model on the CIFAR-10 dataset, achieving **~85%** test accuracy, while experimenting with architecture variations to improve performance.
- Enhanced model robustness using normalization, data augmentation, dropout, and batch normalization reducing overfitting by **20–25%.**

PROJECTS

GPT FORGE - SMALL LANGUAGE MODEL

- Inspired by the design philosophy of **NanoGPT**, applied a **49M paramete**r lightweight transformer model from scratch.
- Enforced a custom learning rate scheduler by combining **linear warmup and cosine annealing** to ensure smoother convergence during training.
- Integrated **PyTorch autocast** for mixed-precision training, leading to a **30%** reduction in GPU memory usage, and achieved more coherent text generation than GPT-2.

MEDIOLOGUE

- Built an AI system to extract key medical insights from doctor-patient conversation.
- Used **Whisper ASR+NMT** Model for Telugu-to-English transcription.
- Leveraged **Few-Shot Learning** with **Microsoft Phi-3** to extract medical data without training or fine-tuning, reducing manual annotation needs by over 90%.

RICE RADAR

- Enhanced a **DenseNet121-**based deep learning model for paddy classification with **98%** testing accuracy.
- Attained **a 97.5%** precision score for robust classification during model testing.
- Reducing manual identification time by 30% and improving decision-making in agriculture.

ARMOR GAZE

- Fine-tuned the **YOLOv8** model on a helmet dataset to identify whether individuals on bikes are wearing helmets or not.
- Mitigated severe class imbalance using Albumentation -based data augmentation, leading to a ~15% improvement in recall and better generalization on minority class examples.
- Accomplished high validation performance : Precision of 93.6%, Recall of 96.4%, and mAP@50 of 97.5%, indicating strong model accuracy and robustness.

EDUCATION

Bachelor of Technology

Minor in Artificial Intelligence and Data Science • Sagi Rama Krishnam Raju Engineering College • Bhimavaram, W.G Dist., AP • 2026 • 9.46 CGPA

Board of Intermediate Education

Minor in Maths, Physics & Chemistry • Sri Chaitanya Junior College • Palakol, W.G Dist., AP • 2022 • 97.2%

Board of Secondary Education Of Andhra Pradesh

Sri Chaitanya Techno School • Palakol, W.G Dist., AP • 2020 • 9.8 GPA

CERTIFICATIONS

VEDIC VISION - 2K24 HACKATHON

Sagi Rama Krishnam Raju Engineering College • 2024

- Member of tech team in a 24-hour hackathon organized at SRKR Engineering College.

Google Developer Groups - DEV CHALLENGE'25

Sagi Rama Krishnam Raju Engineering College • 2025

- Received a Certificate of Excellence for participation in the Dev challenge hackathon at SRKR Engineering College.