# SRINIVAS KALYAN

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## Education

**Indian Institute of Information Technology, Sri City** **Dec 2020 – May 2024**
*Electronics and Communication Engineering CGPA:8.01* *Sri City, Andhra Pradesh*

## Skills

**Languages**: C, C++, Python.
**Computer Vision**: OpenCV, Classification, Object Detection, Segmentation, Image Processing.
**NLP & GenAI**: Text Classification, Question Answering, Summarization, RAG, LLM Fine-Tuning, PEFT (LoRa, QLoRA)
**Frameworks/Libraries**: PyTorch, TensorFlow, Keras.
**Libraries**: NumPy, SciPy, scikit-learn, pandas, matplotlib, OpenCV, Transformers, Hugging Face.
**Machine Learning**: Model-Based Signal Analysis, Pattern Recognition, Deep Learning Architectures.
**Relevant Coursework**: Data Structures and Algorithms, Operating Systems, Computer and Communication Networks.

## Experience

**Onward Assist** **June 2024 - Present**
***Machine Learning Engineer***

- Developing AI-powered diagnostic tools for cancer detection to improve medical image analysis, enabling accurate disease identification and classification.
- Developed an optimized cell detection pipeline, integrating advanced instance segmentation CNNs and UNet-based architectures, which reduced annotation time by 60% and significantly enhanced efficiency in cell identification.
- Conducted a deep learning-based research project focused on tumor vs. non-tumor cell classification. Currently drafting a manuscript for publication, detailing methodology, findings, and potential clinical applications.

**Shivamani Electronics LLP** **March 2024 - May 2024**
***Machine Learning Intern***

- Developed a Machine Learning model using Faster R-CNN to predict faults in cool drink bottles during production, replacing traditional sensor-based checks.
- The model enabled accurate identification of faulty bottles, ensuring defects are detected before packing.

## Projects

**Automated Text Classification** | *NLP, Transformers, Python*

∗ Implemented automated text classification using LLMs like BERT, RoBERTa, and T5 to categorize instructions into three classes: Classification, Segmentation, and Both.
∗ Fine-tuned models with advanced training techniques, leading to improved classification accuracy, faster convergence, and better generalization.

**Retrieval-Augmented Generation (RAG) for PDF Document Search** | *ML, NLP, Python*

∗ Developed a Retrieval-Augmented Generation (RAG) system for efficient information extraction and retrieval from PDFs. Leveraged advanced retrieval techniques to enhance search accuracy and response generation.
∗ Implemented FAISS for vector-based document search, integrated TinyLlama for response generation, and leveraged multiple embedding models to enhance retrieval accuracy and flexibility.

**Comparative Analysis for Tumor and Non-Tumor Cell Classification** | *ML, DL, Python*

∗ Conducted a comparative study for classifying tumor and non-tumor cells using instance segmentation models—NuClick, Stardist, and InstanSeg— followed by a classifier.
∗ Evaluated model performance on the test dataset, analyzing segmentation accuracy and classifier efficiency across six organ types to improve histopathological analysis.

**Detection of Tumor Regions** | *ML, DL, Python*

∗ Developed a pipeline for tumor detection on large scale images, generating heatmap to highlight tumor and non-tumor regions.
∗ Applied DBSCAN clustering with centroids as input, calculating eps via IQR, and performing random sampling of cluster points for classification.

## Achievements and Leadership Activities

**Inter IIIT Cricket Tournament (2023)** **IIIT Kancheepuram**
*March* 2023

∗ Contributed as a team player in the IIIT Cricket Team, winning the finals of the Inter IIIT Tournament
∗ Demonstrating leadership skills and effective communication with teammates, coach, and tournament organizers.