CHARAN KUMAR SELVAM

778-954-9081 charan2598@gmail.com LinkedIn GitHub Portfolio BC, Canada

TECHNICAL SKILLS

Coding Languages: C, C++, C#, CUDA, **Python**
Libraries: NumPy, SciPy, Pandas, Keras, **PyTorch, PyTorch Lightning, TensorFlow**, Matplotlib, Scikit-Learn, OpenGL, OpenCV, FastAPI, Flask, PyTest, ONNXRuntime.
Databases: SQL, PostgreSQL, InfluxDBv2, NoSQL
Tools and Frameworks: Grafana, Git, AWS Sagemaker, **LangChain, LangSmith, RAG, Dockers, MLFlow**.
Cloud Technologies: Amazon AWS, Microsoft Azure
Relevant Skills and Courses: Machine Learning, Deep Learning, Computer Vision, Generative AI/LLM, Image Processing, 3D Processing, Prompt Engineering.

EXPERIENCE

Hypothetic **May 2023 – Jan 2024**
Machine Learning Engineer Intern - Computer Vision | ML | 3D AI *Vancouver, Canada*

- Worked on a research project aimed at developing and fine-tuning a Deep Neural Network architecture using **Pytorch** for predicting **Topological features** of 3D models.
- Developed a Deep Learning model leveraging diverse modalities to predict 3D model orientations with a **97%** accuracy. Also, developed a **Dockerized API** integrating the model in **ONNX** format for deployment on **CPU**.
- Enhanced a 3D alignment model by reducing intermediate **VGG-16** embedding size using **Dimensionality Reduction** used for alignment correction, and reduced processing time by **40%** thereby improving performance.

Extreme Networks **Aug 2019 – Aug 2022**
Associate Software Engineer - C | C++ | Python *Bengaluru, India*

- Integrated 6GHz band(Wi-Fi 6E) support into modules within WingOS, for deployment on Access Points and Controllers using **C, C++ and Python**. Also supported maintenance and resolved Customer-reported Defects.
- Supported Synthetic NICs on **Cloud Controllers** when deployed on **Microsoft Azure** and Hyper-V. Also, developed a WIPS feature aimed at termination of WPA3 connections using Role-based Firewalls.
- Designed and prototyped a pipeline to harvest **network statistics** from APs and transmit them to **InfluxDB** using Telegraf for comprehensive real-time Network monitoring.

Renovus Vision Automation **Dec 2018 – Mar 2019**
Machine Learning Intern - C++ | Python | OpenGL *Bengaluru, India*

- Integrating **Object Detection (YOLO) algorithms** for high-speed quality inspections, resulting in an **18%** reduction in processing time using **Python**.
- Conducted research and survey for techniques for inspecting 3D Point Cloud data and defect detection, inorder to overcome occlusion and depth estimation challenges in 2D imagery.
- Developed a system to estimate dimensions of objects using Point Clouds after PointNet++ Part Segmentation using C++ and OpenGL. Also gathered the Point Cloud Data, Labelled, and Augmented 3D data for training.

PROJECTS

LinkedIn Profile Assistant | *LLM, LangChain, Python* **June 2023**

- Developed a simple application using **LLMs** to summarize a LinkedIn profile and answer questions about the profile.

StyleGAN Latent Vector Interpolation for Facial expression Editing | *Python, PyTorch, SVM* **Apr 2023**

- Identified an SVM Hyperplane in StyleGAN's Latent Vector feature Space separating Facial Expressions.
- Performed latent vector interpolation across hyperplane to modify facial expressions while preserving facial features.

Point Cloud Compass | *C++, OpenGL* **July 2019**

- Developed a software system capable of visualizing Point Clouds using OpenGL and C++, enabling **user-directed** navigation over its surface and accurately estimating dimensions of the 3D object.

Staging Diabetic Retinopathy (DR) using Retinal Images | *Python, OpenCV, K-NN* **Apr 2019**

- Designed and developed a **classifier model** to assess DR severity from retinal images using Neural architecture and **Image Processing** achieving **94%** accuracy.

EDUCATION

M.Sc., Professional Computer Science - Visual Computing **Sep. 2022 – Apr. 2024**
Simon Fraser University *Burnaby, BC Canada*

B.E. in Information Science and Engineering **Jul. 2015 – Aug. 2019**
PES University *Bangalore, Karnataka, India*