TANISHA KHURANA

+1 9847583458 · Raleigh, NC · tkhuran3@ncsu.edu · linkedin.com/in/tanisha-khurana · tanisha1112.github.io

EDUCATION

North Carolina State University, Raleigh **Aug 2022 - May 2024**
Master of Science - Electrical & Computer Engineering **GPA 3.8/4**
Relevant Courses- Digital Imaging systems, Advanced Digital Signal Processing, Probability and Random Processes, Neural Networks and Deep Learning, Advanced Machine Learning, Detection and Estimation theory

Bharati Vidyapeeth University, College of Engineering, Pune **July 2014 – July 2018**
Bachelor of Technology - Electronics & Telecommunication Engineering **CGPA - 9.22/10**

SKILLS

Languages: Python, C/C++, MATLAB, SQL, Git, Bash, Docker **Tools/Platforms:** AWS, Azure, Intel OpenVINO, Arduino, Raspberry Pi
Frameworks - OpenCV, Tensorflow, Keras, Pytorch, Scikit-Learn, Numpy, Pandas, PIL, Matplotlib

EXPERIENCE

Computer Vision Research Engineer, Wobot.ai **May 2021 - July 2022**
- Engineered solutions to create Proof of Concepts for use cases in Video Analytics and Smart Surveillance for 200+ CCTV cameras.
- Formulated algorithms for activity recognition using SlowFast and I3d Convnets, pose estimation and motion detection.
- Scaled ML models in high-throughput and low-latency using TF Serving and triton leading to 50% faster inference time.
- Improved accuracy of existing models by more than 20% using new data generation and augmentation techniques.
- Developed production ready code in dockerized containers, integrating it with the frontend UI and successfully deployed for live usage.

Research and Development Engineer, Intello Labs Pvt. Ltd **Jan 2020 - May 2021**
- Led the end to end development of a fruit, vegetable and spices grading sorter based on size, color, and visual defects.
- Used Faster RCNN, Mask RCNN and SSD object detection and tracking models, reducing manual labour costs saving $3M annually.
- Carried out K-means Clustering, color segmentation and PCA to classify the commodities free from human bias.
- Implemented models on edge devices such as NVIDIA Jetson NANO, Xavier and Google coral board.
- Performed real time video streaming on multiple Raspberry Pi's for shelf life monitoring and eliminating food loss by 50%.
- Achieved identification accuracy of 95% and classification accuracy of approximately 90%.

IOT Engineer, Qiggle.ai **Jan 2019 - Oct 2019**
- Designed a predictive analytics solution for industrial applications using Anomaly detection and remaining life estimation
- Executed the transmission of data packets for vibration analysis using Socket Programming with Flask API.
- Detected under-performing and abnormally-behaving assets to save weeks of lost power generation and reduce asset downtime.

Data Science Intern, Innefu Labs Pvt. Ltd **Oct 2018 - Dec 2018**
- Optimized ResNet 50 and YOLOv3 for face detection and weapon detection and achieved a TPR of more than 98%.

Electronics Engineer, GenElek Technologies Pvt. Ltd **Aug 2018- Oct 2018**
- Worked on building affordable and light-weight lower limb exoskeletons and innovated the algorithm for sitting and standing.
- Responsible for the actuation and simulation using Arduino, accelerometer, EMG muscle sensor and actuators

PROJECTS

Laplacian Blob detector **Nov 2022**
- Implemented Blob detection by applying Laplacian scale-space representation as well as 2-D and 3-D non-maximum suppression.
- Experimented with different thresholds, standard deviations, and constant multiplier values to achieve the appropriate number of blobs and runtime for various images.

Image blending using laplacian and gaussian pyramids **Nov 2022**
- Wrote a function to compute the Gaussian and Laplacian pyramids of an input image.
- Created a GUI to generate a mask in an input image given by the user and perform pyramid blending using a mask and background image.

Simulation, Transformation and Convergence of Random Variables **Nov 2022**
- Generated normal, exponential and uniform random variables using built-in MATLAB routines and rejection method.
- Used MATLAB app designer to build a GUI for convergence simulation and proved the central limit theorem.

Modeling Food Web and Forecasting Populations for Endangered Wildlife Species **Apr 2021 - June 2021**
- Collaborated with project partner Endangered Wildlife OÜ through Omdena to build an automated data collection and extraction tool.
- Built a Haystack BERT QA model to track the population of different species over time using streamlit.

EXTRA-CURRICULAR ACTIVITIES AND ACHIEVEMENTS

- Currently undertaking independent research under Dr. Edgar Lobaton in the Active robotics Sensing Lab **(**ARoS**)** **Jan 2023**
- Member, Embedded Machine Learning Club, Women in ECE, Women in CS, Quantum Information Club, NCSU iGEM **Sep 2022**
- Ranked first in NC Plant Science Initiative hackathon for the most accurate semantic segmentation model with 89% accuracy. **Oct 2022**