Sanjay Shanbhag

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EDUCATION

Master of Science in Computer Science   **Aug 2021 - Present**
University of Central Florida | Orlando, FL | 3.75 GPA
Bachelors in Electronics and Communication Engineering   **July 2015 - July 2019**
Acharya Institute of Technology | Bangalore, India | 8.01 GPA

TECHNICAL SKILLS

Programming Languages: C, C++ (Object-oriented design), Java, Python
Technologies: Computer Vision, Deep learning, Azure Cognito services, Image Processing, Machine learning, CNN, Embedded Systems (Raspberry pi, Arduino, ESP32, IP and Analog cams, Ensenso Stereo cameras), ROS (Robot Operating system), Point Cloud Library, Open3d, Web Development, Relational Databases SQL (Basics)
Frameworks: Pytorch, Keras, TensorFlow, Scikit-learn, Pandas, OpenCV, ONNX
Tools: Visual studio code, Linux (Ubuntu), Arduino IDE, Open vino (Deep Learning Optimization Tool), Cloud Compare, PyInstaller (EXE), Any Desk, postman, Git (Version Control), BitBucket
Certifications: Neural Networks and Deep Learning**,** Improving Deep Neural Networks**,** Structuring Machine Learning projects**,** Introduction to Containers w/ Docker, Kubernetes, OpenShift**,** Build Basic Generic Adversarial networks (GANs),Essentials of Linear algebra for Data science, AWS Cloud Practitioner Essentials, Accelerated computing with CUDA Python
Coursework: Advanced Computer Arch, Computer vision, Advanced Computer vision, Machine learning, Design and Analysis of Algorithms

PROFESSIONAL EXPERIENCE

Data Science Engineer   **Aug 2020 – July 2021**
AIndraLabs Pvt Ltd | Bangalore, India -- Client Hero Moto Corp
- Improvised the **FPS to 25** for a computer vision application by utilizing quantization on deep learning models.
- Trained an **Intra-class classifier** from scratch to obtain an average accuracy of **75%** for the "**REVERSE VENDING MACHINE**" on Nvidia-GPU.
- Created a bottle tracking and detection pipeline using **Background subtraction** and **Centroid tracker**.
- Qualitative and quantitative analysis of deep learning models utilizing **Scikit-learn**.
- Designed a 360-degree Barcode scanning system on with **99**% perfect detection accuracy.
- Increased the overall accuracy of "**WOODLOG FACE RECOGNITION**", by a margin of **5%** using "**Soft Attention Mechanism**" as compared to non-attention methods.
- Found out a method to visualize the learnings of CNN using **GRAD-CAM** (Applicable to Explainable-AI)
- Enhanced the FPS of the **PEOPLE ANALYTICS** software application by a margin of **5** using OpenVino**.**
- Worked on an in-store analytics project which involved getting insights of the store like consumer and staff count (**person-REID model OSNet using Pytorch**) , group count, age, and gender etc.
- Utilized a naïve version of "**Active learning** "for labelling the gathered dataset and hence cut-off the manual work of 3 persons.

Embedded Software Engineer   **Sept 2019 – Aug 2020**
Sigsenz Technologies Pvt Ltd | Bangalore, India -- Client Total Gaz
- Developed a deep learning application "**FACE REGISTRATION APPLICATION**" using **FACENET (Keras)** with various features like Face absence detection, 2 level Facial verification using azure cognitive services, OTA update feature etc.
- Single-handedly trained a **MULTI CLASS OBJECT DETECTOR** (seatbelt, mobile-usage, drowsiness, facial mask detection) for the driver Analytics utilizing **Azure cognitive cloud services**.
- **INDUSTRIAL SURVEILLANCE** using FACE RECOGNITION algorithm for a food industry with a periodic **message-on-violation** alert system.
- **OFFICE SURVEILLANCE** using multi overhead camera setup utilizing **Ultra-Light 1 MB (TensorFlow)** model with a smooth FPS of 25 on an 4GB RAM system.

PROJECT EXPERIENCE

Driver Drowsiness Detection | Acharya Institute of Technology   **Mar 2019**
- Created a simple application using the 68 facial landmarks
- The facial landmarks were trained using **Ensemble of regression trees**

eBay 2021 University Machine Learning Competition **|** eBay ML competition
- Achieved a **top-1 accuracy of 77.53%** and a **top-2 accuracy of 99.97%.**
- **AdaBoost** gave out the best accuracy out of the other 8 models that were trained.   **Nov 2021**

Worked on Image Segmentation for autonomous driving (U-NET) | University of Central Florida   **Dec 2021**
- Achieved a segmentation of the streets using the **U-Net** Architecture with an overall **IOU of 0.4536**

Working on **Synthetic Data Generation** using CTGAN's **|** University of Central Florida   **Mar 2022**
Working on Tiny-Action Recognition Challenge **|** CVPR 2022   **May 2022**
Worked on **MRI-Image Segmentation** for left ventricle segmentation   **May 2022**

ON-CAMPUS ACTIVITIES

Active Member of Member of IEEE UCF | University of Central Florida **Aug 2021**
- Organized a Robotic competition at IEEE Southeast Conference | Mobile, Alabama (March 31 -April 3, 2022)

Organizing Member of UCFKAT (Knights Auto Team) | Autonomous Driving Community **Dec 2022**
- Conducted workshops for Undergraduate students on Python for robotics and Autonomous driving

Graduate Teaching Assistant | Introduction to Robotics **Jan 2022**
- Conducting Practical Lab on ROS for class of 60 Students

Graduate Research Assistant **|** 3D point cloud Processing **May 2022**
- Working on Robotic industrial Automation for shot Peening
- Industrial Auto-Part detection using Depth camera and Point clouds

Graduate Research Assistant | Health Data Completeness (Machine learning, MRI motion Artifacts) **May 2022**
- Conducting research on analyzing data incompleteness in motion corrupted MRI Images.