

PRABHAKAR SIVANESAN

Computer Vision Engineer

✉ sivanesanprabhakar@gmail.com

☎ +91 8870045692

🌐 prabhakar-sivanesan.github.io/me

🌐 [in/prabhakar-sivanesan](https://in.prabhakar-sivanesan)

CAREER OBJECTIVE:

Aspiring individual with over 6 years of experience in the field of Research and Innovation looking for a challenging career in an organization which provides an opportunity for continuous learning, implementation of newer technologies to create a positive difference in Personal and Organizational growth.

ACHIEVEMENTS

- Recipient of Facebook developer circle scholarship.
- “Innovista Topseed” for being selected as a top seed in TCS Innovista.
- “Innovation Super Star” award for building innovative solutions within the RnI group.
- “Innovation Pride” award for winning a hackathon – CHINNA.
- “Best Innovation” award in a hackathon conducted by SAS airlines.
- “On the Spot” award for creating a high impact solution on a short notice.
- “CLP Faculty” award for successfully conducting workshops and training sessions on various technologies.
- “Champion of ILP” award for outstanding performance during initial training programme.

TECHNICAL EXPERTISE:

Programming Languages: Python, C++, Java, Arduino, Micropython

Deep Learning: Tensorflow, PyTorch, Keras, Intel OpenVino, MLflow, TensorRT

Computer Vision: OpenCV

Cloud Services: AWS, GCP and Azure

Databases: MySQL, MongoDB, PostgreSQL

Version Control: Git

Android Frameworks: ARCore, Retrofit, Google MLkit, Firebase, Tensorflow lite

IDE: Spyder, Pycharm, VS Code, Eclipse, Android Studio, Sublime text

Robotics: ROS, Gazebo, Rviz

Edge devices: Nvidia Jetson TX2 and Nano, Raspberry pi, Snapdragon Dragonboard, Arduino

Operating Systems: Linux, Windows, Android, Android Things

PROFESSIONAL EXPERIENCE

- **Tata Consultancy Services – Research and Innovation** 2015 – Present
Computer Vision Engineer

PROJECT DETAILS

Project Name: PalPicker - Autonomous Mobile Robot

Environment: Python, ROS, Open3D, Tensorflow

Project Responsibilities:

- Built a pallet and roller cage detection model to identify and locate the object.
- Collected point cloud data from Intel realsense camera to understand the position and orientation of the object in 3D space.
- Convert the position and orientation data into ROS format and initiate the robot for automatic docking.
- Created a re-attempt sequence for improper docking.
- Developed a computer vision algorithm to detect and understand the position and orientation of the charging dock using apriltags.

Project Name: Smart Turn - TCS Aviana [™] 

Environment: Python, Tensorflow, OpenCV, Flask

Project Responsibilities:

- Built a custom keypoint classification model to understand the aircraft type.
- Trained and built a model to detect 38+ turnaround activities, GSE vehicles & equipment and monitor those events.
- Optimized the model using Intel OpenVino framework and achieved 72% increase in throughput and reduced latency by 41% using model compression and quantization techniques with very negligible compromise on accuracy.
- Identify the potential delay causing anomaly and alert the TCS Aviana [™] Engine.

Project Name: Railroad Inspection

Environment: Python, Tensorflow, Keras and OpenCV

Project Responsibilities:

- Created a semantic segmentation model which segments Sleepers, Ballast and Track.
- Created an object detection model to detect tie and ERC clips in the place on the tracks.
- Developed an algorithm to detect cracks and rust formation on the track using thermal image.
- Analyzed the intensity of the slit and cracks on tracks and monitor those progress over time.

Project: Congestion Analysis on conveyor belt and chutes

Environment: Python, PyTorch, OpenCV

Project Responsibilities:

- Created a CNN model to classify the type of parcel as box parcel, paper based or special package.
- Identified the dimension of the package by analyzing the depth information using Stereo Camera (Zed mini).
- Created a computer vision model to identify the congestion on the chutes from video feed coming from 140+ cameras and localize it.
- Monitor the congestion intensity and notify the ground staff about the exact location of the congestion. This reduced the turnaround time to clear the congestion from 20 mins to 90 secs.

Project Name: Bay Management

Environment: Python, PyTorch, OpenCV, Flask

Project Responsibilities:

- Built an object detection model to detect license plates and an OCR model to recognise the license number to track the entry and exit time of the delivery vehicles.
- Created client application using Actor model (Thespian) design pattern to create a pipeline to consume images from 30+ cameras and run inference on the deep learning models with concurrency.
- Developed activity recognition model to detect and monitor the activity happening at the docking station.
- Built API endpoints using Flask framework to process the features and anomalies.

COURSES AND CERTIFICATIONS

- Deep Learning Nanodegree
- Introduction to deep learning using PyTorch
- Machine Learning by Andrew Ng
- Tensorflow from Basic to Mastery
- Oracle Certified SE6 Java Professional

EDUCATIONAL QUALIFICATION:

- Bachelor of Engineering (Computer Science and Engineering) 2011 -2015
Anna University, Chennai, India