# Muhammad Afaq Saeed

Lead Computer Vision Engineer

A Lead Computer Vision Engineer at Strada Imaging with about 2 years of experience in the Computer Vision domain with an emphasis on Deep Learning, Object Recognition. Currently leading a team of 8 people at Strada Imaging heading the development of two unique products CyPi and DeepRoad.Has a background in Autonomous Robotics having developed multiple robots through his career from LEGO-based to fully indegnious robots. Looking for new opportunities in order to connect the 2 areas of expertise.

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## EDUCATION

**Bachelors of Mechatronics, Robotics& Automation Engineering**
National University of Sciences & Technology
*06/2017 - 06/2021* *CGPA : 3.63*

## WORK EXPERIENCE

**Lead Computer Vision Engineer**
Strada Imaging
*01/2022 - Present* *Remote*

*Achievements/Tasks*

- Lead a team of 8 people to develop various Computer vision algorithms for various Perception Tasks and manage collaboration on Github.
- Deployed ML Models on GCP using Docker and Kubernetes
- Integrated CV based Shape and Color detection, an OCR and a Oneshot learner into a module for Sign Recognition achieving 90% accuracy on 613 signs
- Calibrating Cameras in Monocular and Stereo Configurations
- Incorporating GPS, Accelerometer, Gyroscope to estimate accurate positions of assets in 3D
- Stereo 3D Reconstruction of Pavement Surfaces
- SFM 3D Reconstruction of local road scenes

*Porfolio : https://www.youtube.com/channel/UCUPzSXCskafKOlKFYPx_x0g*

**Computer Vision Intern**
Strada Imaging
*06/2021 - 12/2021* *Remote*

*Achievements/Tasks*

- Implemented YOLOv3 and Deeplabv3 classifier to recognize road objects like Cars and Traffic Signs.
- Configured a Deeplabv3 Based Semantic Segmentation to Recognize and Locate Various Objects on the Road (See Youtube Link)
- Developed a Unique Object Tracking and Counting Algorithm for a moving Camera System based on the above Detections

*Porfolio : https://stradaimaging.com/products/deeproad/*

**Computer Vision Intern**
Strada Imaging
*06/2020 - 05/2021* *Remote*

*Achievements/Tasks*

- Labeled datasets for Detecting Transport Infrastructure Through Machine Learning in CVAT
- Created a Signboard Database to cross reference features helpful in Traffic Sign Recognition
- Handled captured images and videos in various formats and generated corresponding image formats

## SKILLS

Photogrametery | SFM 3D Reconstruction | Cython | Image Processing | Sensor Fusion | Object Tracking | Machine Learning | Deep Learning | Pytorch | Python | Linux | Open3D | 3D Scanning | Agile Methodologies | CVAT | OpenCV | Autonomous Robotics | Github | Pandas | C++ | Image Processing | Docker | Data Annotation | Stereo 3D Reconstruction | Kubernetes

## PERSONAL PROJECTS

3D Scanner Prototype (06/2019 - 07/2019)

- Designed and Fabricated design using CNC laser cutter on acrylic sheets
- Used Arduino stepper motors to control the rotation of the camera
- Applied SFM 3D reconstruction based on keypoints on the generated data to create 3D reconstruction

Autonomouos Wall Following Robot (08/2019 - 03/2020)

- Fusing laser and ultrasonics and laser sensor's to detect and follow walls in a controlled environment
- Programming of the control algorithms and calibration of sensors
- Mechanical Construction of the Robot using acrylicc

Line Following Robot (06/2019 - 07/2019)

LEGO based Line-Following Robot (08/2018 - 10/2018)

Modular Wall following Robot (04/2019 - 05/2019)

Contributing to OpenSfM Library on GitHub

## CERTIFICATES

Introduction to Computer Vision and Image Processing by IBM

First Principles of Computer Vision Course

Deep Learning Specialisation Coursera (5 Courses) (09/2019 - 09/2021)

AWS Machine Learning Essentials Udemy

IELTS - C1 Proficiency (7.5)