Keith Rodrigues

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PROFESSIONAL SUMMARY

Over 4 years of experience in developing cutting-edge computer vision algorithms for advanced driver assistance systems (ADAS). Proficient in software development, image analysis, pattern recognition, and deploying on-device deep learning solutions. Demonstrated expertise in solving complex image processing challenges and contributing to innovative, high-impact projects.

SKILLS

- Machine Learning
- Computer Vision
- OpenCV, scikit-learn
- ROS/ROS2
- PyTorch, Tensorflow, Caffe, ONNX
- Python, C++
- Linux, Windows
- GIT, Docker
- Communication
- Adaptability
- Team work
- Problem solving

EDUCATION

Master of Science in Robotics — Sep 2023 – Sep 2024
The University of Sheffield — Sheffield, UK
Relevant modules: Deep learning, Machine vision, Mobile robotics and autonomous systems.

Bachelor of Engineering in Electrical and Electronics — Jul 2014 – May 2018
Goa University — Goa, India
GPA: 8.01/10

✓ Recipient of the Fomento Resources Gold Medal Award for being the top performer.

WORK EXPERIENCE

Senior Data Scientist — Apr 2023 – Aug 2023
Visteon Corporation — Goa, India

Vehicle Surround View Monitor System

- Led the high-precision calibration of the surround view system in the test vehicle.
- Successfully developed seamless bird's eye and 3D views using fisheye cameras.
- Designed a method using equirectangular projections to provide undistorted front and rear corner views of the vehicle.
- Enhanced on-device system performance by optimizing the OpenGL-based rendering pipeline, resulting in reduced latency.
- Executed simulation-based testing to identify corner cases and determine optimal camera configurations.
- Familiar with common camera models, calibration, and image enhancement techniques.

- Automated the intrinsic and extrinsic camera calibration using Python and OpenCV.

This role was instrumental in securing production projects with two leading OEMs, driving revenue growth, and enhancing market presence.

Embedded Software Engineer Jul 2021 – Mar 2023
Visteon Corporation Goa, India

Visteon's level 2/2+ ADAS features

- Liaised with teams from Texas Instruments and Samsung to import and evaluate deep learning vision models on their SoCs. Reported and helped resolve 20+ issues with their import and inference tools.
- Developed C++ based applications in ROS2 for end-to-end real-time deployment of the quantized models on embedded hardware.
- Formulated a probabilistic occupancy grid for vehicle path planning using semantic segmentation.
- Assisted the validation and perception teams through SIL and HIL testing, actively resolving defects.
- Facilitated seamless software integration for customer demos, consistently delivering ahead of schedule.
- Conducted peer reviews for code changes.

Software Engineer Jul 2018 – Jun 2021
Visteon Corporation Goa, India

- Developed and finetuned robust convolutional neural networks for traffic sign/light recognition, lane detection using semantic segmentation, and object detection using the SSD and YOLO frameworks.
- Evaluated the model performance against state-of-the-art models and conducted an extensive literature review.
- Generated object detection and classification datasets for vehicle occupant monitoring system to detect number of occupants and driver emotions.
- Utilized CVAT and LabelMe for data annotation and implemented augmentation techniques to improve the detection accuracy by over 10% in challenging scenarios.
- Proficient in managing and processing large scale datasets to train and validate computer vision models.
- Performed requirement analysis, authored test cases, and logged defects.

PROJECTS

Explainable deep learning for brain tumor diagnosis | Brain tumor classification from MRI images with convolutional neural networks and explainability using class activation mapping techniques.
PyTorch • Image processing • Optimization

Mimic-arm | Two-segment planar robot manipulator mimicking human arm movements.
MediPipe Pose • Forward kinematics