

Arjun S Kumar

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EXPERIENCE

Ignitarium Technologies

Kerala, India

Senior Machine Learning Engineer

Apr 2019 – Present

- Working on the evaluation of vSLAM and Visual Odometry algorithms targeted for Nvidia Jetson platforms based F1/10 size autonomous car
- Working on training and evaluation of Deep Neural Network models using Keras, TensorFlow in Carla Simulator
- Developed object classification, object detection, semantic segmentation neural networks using Transfer Learning targeted for ARM x86 devices

Nanyang Technological University

Nanyang Eve, Singapore

Research Associate (Aerial Robotics)

Aug 2018 – Apr 2019

- Gained hands-on experience with real-world deployment of Visual Inertial Odometry (VIO) and Simultaneous Localization and Mapping (SLAM) algorithms such as DSO, ORB-SLAM, ROVIO, VINS-Mono, RVIO, and MSCKF-VIO and benchmarked their performances on Nvidia Jetson TX2.
- Worked on the navigation of autonomous Micro Aerial Vehicles (MAV) in a GPS denied environment using only On-board Camera and IMU and achieved an average absolute trajectory error of 0.025m
- Built custom Micro Aerial Vehicle with Stereo Camera, Nvidia Jetson TX2 and Pixhawk under ROS platform
- Implemented VIO algorithms with Double Input Type-I and Type- II fuzzy logic controllers and simulated their performances under various flight speeds in Gazebo

Addverb Technologies

Noida, India

Robotics Engineer

Jan 2018 – July 2018

- Demonstrated ability to lead research projects and identify the potential use cases for the warehouse domain.
- Developed and deployed perception algorithms for Robotic 3D Bin picking for an E-commerce client using Point Cloud Library (PCL), OpenCV, ROS and TensorFlow with ABB, KUKA, Universal Robots manipulators.
- Implemented a perception based solution for pallet detection using 2D Laser scanners.

Ernst and Young

Kerala, India

Artificial Intelligence and Robotics Consultant

Jan 2017 – Dec 17

- Possessed strong ability to interact with clients and manage multiple and varied projects with enthusiasm and prioritize workload with attention to detail.
- Developed and Demonstrated various Proof of Concepts (POCs) using Microsoft stack of technologies including Cognitive Services, Microsoft HoloLens (v1), Kinect Sensor and CNTK framework.
- Developed a computer vision algorithm for crack detection and rust classification occurred in mobile towers using Deep Neural Networks and ROS for a US-based Aerial company.
- Worked on the integration of PTAM-SLAM with Parrot Ardrone 2.0 and Parrot Bebop drones and developed warehouse inventory management POCs.

Ingeniarius Lda

Coimbra, Portugal

Mobile Robotics Intern

Jun 2016 – Oct 2016

- Worked across the entire development of a differential drive ROS mobile robot.
- Implemented an Evolutionary swarm robotics algorithm using C++, ROS in Gazebo.

EDUCATION

Amrita School of Engineering

Kerala, India

Master of Technology - Robotics and Automation

Jul. 2015 – Jul 2017

Amrita School of Engineering

Kerala, India

Bachelor of Technology - Computer Science and Engineering

Aug. 2011 – May 2015

EDUCATION

Udacity

Online

Master of Technology - Robotics and Automation

Jul. 2015 – Jul 2017

Amrita School of Engineering

Kerala, India

Bachelor of Technology - Computer Science and Engineering

Aug. 2011 – May 2015

PROJECTS

Gitlytics | *Python, Flask, React, PostgreSQL, Docker*

June 2020 – Present

- Developed a full-stack web application using with Flask serving a REST API with React as the frontend
- Implemented GitHub OAuth to get data from user's repositories
- Visualized GitHub data to show collaboration
- Used Celery and Redis for asynchronous tasks

Simple Paintball | *Spigot API, Java, Maven, TravisCI, Git*

May 2018 – May 2020

- Developed a Minecraft server plugin to entertain kids during free time for a previous job
- Published plugin to websites gaining 2K+ downloads and an average 4.5/5-star review
- Implemented continuous delivery using TravisCI to build the plugin upon new a release
- Collaborated with Minecraft server administrators to suggest features and get feedback about the plugin

TECHNICAL SKILLS

Languages: C++, Python, Rust

Developer Tools: Git, Docker, OpenCV, OpenVX,PCL, ROS1/2

Deep Learning Libraries: Pytorch, TensorFlow, Keras

PUBLICATIONS

Search and Rescue Operations Using Robotic Darwinian Particle Swarm Optimization: ICACCI (2017)

Automated Inspection of Monopole Tower using Drones and Computer Vision: ICoIAS (2019)