Vishnu VEILU MUTHU

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OBJECTIVE

Interested in innovation, R&D in the field of Computer vision, Robotics, Artificial Intelligence (AI) and Geographic Information Systems (GIS). Also interested in products/apps & services in next generation technology; Seeking areas with theoretical/practical research work including both hardware & software.

EXPERTISE

- Programming Skills: C/C++, Java, C#, Python, SQL, VHDL.
- Tools: MATLAB, QT, ROS, Visual Studio, Android Studio, 3D Model tools, Embedded systems.
- Lib: OpenCV, Machine Learning Lib - TensorFlow, GIS Lib – PostGIS, Postgresql.
- Hardware: Embedded Development Boards, Processor & FPGA.

JOBS

- Launchtrax Pvt. Ltd, Bangalore, India – Senior Engineer (Feb 2021 – Jun 2024)
- Freelancer in Industrial robotics and AI (Jan 2019 – Jun 2024)
- STOP Project – Research Engineer, Universidade de coimbra (1 year; 2017-2018),Coimbra, Portugal.

EDUCATION

- Masters 4th Semester – Research Training, Università degli studi di Udine (2017),Udine, Italy. - Thesis topic: "Synchronization of projective frames" Supervisor: Prof. Andrea Fusiello.
- Masters 3rd Semester - Computer Vision and Robotics, université de bourgogne (2016-2017),Le Creusot, France. - ROS with Computer vision, Real time tracking, VHDL programming.
- Maters 2nd Semester - Computer Vision and Robotics, universitat de girona (2016),Girona, Spain. - Visual Perception, probabilistic robotics.
- Masters 1st Semester - Computer Vision & Robotics, université de bourgogne (2015-2016),Le Creusot, France. - Applied Mathematics, Image processing.
- Licences - Computer Vision and Robotics, University of Burgundy (2014-2015),Le Creusot, France. - Software Designing, Basics of Image processing.
- B.E-Electronics & Instrumentation, Adhiyamaan College of Engineering (2010-2014), Hosur, Tamilnadu.

ACCOMPLISHMENTS

- Design and Development of an Autonomous underwater robot, controlled with Image Processing for Vision for the AUVSI foundation and ONR's(U.S. Office of Naval Research) 16th International Robosub competition:SSC Pacific TRANSDEC, San Diego, CA, USA in 2013.
- Design and Development of an Agricultural Autonomous Robot(AGROBOT) for Remote Area Farming - that could drill the ground and drop seeds, an real time application. Indigenous & Innovative design for the Final year Engineering project in 2014.

STUDENT INTERN OR COURSES

- Deep learning specialization – deeplearning.ai by Andrew Ng (2019); Coursera certification.
- Luxembourg institute of science and technology - Summer Internship (3 months; 2017) in ReacTIVision.
- Universitat de girona - Summer Internship (2016); Structure from Motion.
- Le2I laboratory - Summer Internship (2015); Camera Calibration.
- BangaloreRobotics Pvt. Ltd. (2012 - 2014); Hardware and Software Design for Robotic Application.

Launchtrax Pvt Ltd (2021 – Present): My work involves design and development of app/products related to GIS both Aviation and Marine. Some of the works involves Marine Navigations systems (Path planning) for underwater vehicles, Server design for ARINC and S52 standards, real time control of gimbal over geographic position and targeting Systems, Network navigation/topology for road map analysis, Real time collaborating system for vector layer application (GIS Map data), Image processing for Aviation application.

Freelancer (Jan 2019 – Present): My research work involves multiple companies for the development of Ideas or Application. Some of the works are NER for message services, Android App for sensor fusion, RestAPI for web-based video application, detection of screw center using image processing, Servo control for 3D printing and carving devices, detection of Vehicles based on AI.

STOP Project (2017- 2018): My research work is on multi-robot patrolling of infrastructures, with an emphasis on robot artificial perception methods for detection and recognition of abnormal situations. The security threats in the context of automatic surveillance system includes detecting using Deep learning algorithm, activity analysis of people, and localization of using multiple robot and 3D sensors.

Internship LIST (2017): I had the opportunity to develop an application using ReacTIVision software. ReacTIVision - framework for the development of tabletop tangible user interfaces. My work was to design a hollow space in the center of the fiducial marker and program software to detect it.

Master's thesis (2017): 'Synchronization of projective frames', method to integrate group of different frame projective reconstructed matrices by a single global projective transformation. Most projective reconstruction method suffers from common drawbacks which requires multiple iterative process and may not converge or only converge to a local minimum. To avoid such problems, by arranging the transformation between each camera of different views in a global network and solving them using graph modeling.

Cleaning Robot - Computer vision on ROS (2016): This project is part of master's course work; the main objective of the project is to detect the trash from a roadside environment or in an after-party site. The process is designed that the robot is programmed to navigate the entire area and search for object (trashes).

Internship Girona (2016): I had the opportunity to learn and understand the dynamics of moving objects in a video. My work was to extract the optical flow information in a video, captured from a moving vehicle. The work includes visual perception using Structure from Motion Techniques and scene segmentation.

Seeded image segmentation (2015): This project is part of master's course work implement and improve, "Laplacian coordinates for seeded image segmentation" a CVPR2014 research paper.

Internship Le2i (2015): I had the opportunity to learn the basic concepts of camera calibration techniques and visual perception concepts. My work was to capture multiple images projected over the wall with unknown camera parameter and calibrate it using Jean-Yves Bouguet's camera calibration Toolbox.

Software engineering Project (2015): The project is part of bachelor's course (Software engineering module), the work is to design GUI for robotic framework with C++. The application contains a server and client section to manage the network connect between a robot and the workstation.