VENGATESAN GOVINDARAJU

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(Jan 2013 - April 2017)

CAP: 4.67 / 5

EDUCATION

Doctor of Philosophy,

National University of Singapore

Supervisor: Assoc. Prof. Gerard Leng Siew Bing



Thesis Title: Path Planning Strategies for Visibility Enhancement with Unmanned Aerial Vehicles in Cluttered Environments (Please visit website for abstract/videos.)

Modules undertaken: Advanced Robotics · Machine Vision · Visual Computing \cdot Evolutionary Computation \cdot Soft Robotics \cdot Discrete Events Systems



Bachelor of Technology, Mechanical Engineering

Master of Business Administration (Online)

(July 2007 - May 2011)

CAP: 8.97 / 10

National Institute of Technology - Trichy

(May 2018 - Feb 2019)

Quantic School of Business and Technology, Washington, D.C.

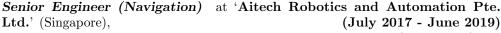
PROFESSIONAL **EXPERIENCE**

Senior Staff Engineer at 'Panasonic Research & Development Center Sin-(July 2019 - Present) gapore'.

Visual SLAM technologies:

Panasonic

- Developed techniques to improve localization for autonomous vehicles, delivery robots and wheelchairs by more than 20%.
- Worked on parallelizing data collection and mapping to demonstrate real-time autoparking system resulted in squeezing the total time required by more than 40%.
- Worked on Mobile App using Flutter framework to demonstrate Visual Positioning System for personal navigation assistance with **AR** in indoor environments. Robotics technologies:
- Implemented ROS1 Websocket based communications to implement Visual localization for multiple autonomous wheelchairs.
- Collaborated with OSRC to develop ROS2 adapter for Robotics Middleware Framework (RMF) for integrating our robots with smart building infrastructure. Technical Leadership:
- Introduced automation tools to the team such as tmux, docker to speed-up robot bringup, thereby improving efficiency in development and testing
- Took initiatives to write proposal grants for several successful fundings.
- Certified Scrum Product Owner and utilize agile project management to manage many members and multiple projects at a time.





- Developed reflector-based mapping and localization, sensor-fusion (IMU, Lidar) and control algorithms, for several medium/heavy-duty autonomous mobile-robots (differential, ackermann, tricycle, omni-directional), for intra-logistics applications.
- Worked on design, selection, procurement, fabrication, testing and deployment at customer site and led a team of engineers from robotics, IT and operations to successfully complete projects on time.



Aviation Officer, at Mumbai International Airport, (Sept 2011 - Nov 2012) Indian Oil Corporation Ltd.

- Maintenance in-charge of fuel pumping equipments, vehicles. Also, proactively developed a software application for efficient scheduling of Aircraft Refuelling Operations

TEACHING EXPERIENCE

Teaching Assistant at NUS for modules EG1109 - Statics and Mechanics of Materials and ME3112 - Mechanics of machines. (Spring 2014, Fall 2015 resp.)

PUBLICATIONS

Conferences

IEEE

- 1. Vengatesan G, Gerard Leng, Zhang Qian, Visibility-based UAV path planning for surveillance in cluttered environments, 12th IEEE International Symposium on Safety, Security, and Rescue Robotics, Toyako Japan (Oct 2014)
- Vengatesan G, Gerard Leng, Zhang Qian, Visibility Maximization for Multi-UAV Surveillance over Urban Regions, Singapore Airforce Technology Exhibition and Conference, Singapore (April - 2014)

Journals

 Vengatesan G, Gerard Leng, Zhang Qian, Multi-UAV Surveillance over Forested Regions, Photogrammetric Engineering and Remote Sensing, No. 12, pp. 1129-1137(9) (Dec - 2014)

ACADEMIC ACHIEVEMENTS

Image Processing Robotics:

 Won the Second Prize in IIT-Bombay TechFest - 09 in the GOAL Event for building an autonomous Image Processing Soccer playing robot. Won prizes for similar events in IIT Madras Shaastra - 09, PSG College of Technology, Coimbatore and SRM University, Chennai.

BAJA - SAE All Asia: Participated in **SAE-Baja** All Asia 2010 - All terrain vehicle design and fabrication competition held at NATRIP facility, Pithampur, Indore.

PROJECT WORKS

- Final Year Project on Simulation of Stewart Gough Platform using MATLAB, SimMechanics and SimHydraulics at NIT Trichy, (Jan May 2011)
- Stereo Camera Calibration and 3D coordinate measurement using Stereovision at Engineering Design Dept., IIT Madras (May 17th - July 17th 2010)
- Optimization of Magnetic Abrasive Finishing Process using Breeding Swarm Optimization at Mechanical Engg Dept, IIT Kanpur (May 5th July 5th, 2009)

COMPUTER SKILLS

- Operating Systems: Linux, Windows
- Languages : C++, Python
- Packages: ROS1 & ROS2, Gazebo, MATLAB, Simulink, AutoCAD, Solidworks, 3D Printing, Blender, OpenCV, OpenPCL, LATEX.

EXTRA-CURRICULAR ACTIVITIES

Positions of Responsibility:

- Manager of a hands-on robotics workshop for building an autonomous 'Sumo-Robot's which had around 250 participants. Event Manager of an Image Processing Robotics event 'Snakes and Ladders' in a national level technical festival.
- Organized a science exhibition for students from rural schools and exhibited an Image Processing Robot to motivate the students to continue their studies.

Sports / Other relevant informations:

- Parade Commander and Second Best Cadet at the inter-college NCC drill competition. Awarded the 'Best Firer' in the rifle firing competition.
- Hobbies: Swimming, Badminton, Guitar.
- Languages: Fluent in English, Tamil and conversational Hindi