Srikanth Malla

Contact Information

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Research Interests

Human Computer Interaction, Mobile Robots, Machine Learning and Computer Vision

Education

Vellore Institute of Technology, Vellore, India — *Expected:* May 2016
B.Tech, Electronics and Instrumentation (Major) — CGPA: 8.68/10.0

Research Experience

Research Associate — Sept 2015 - Present
Field Robotics Center, Carnegie Mellon University — Advisor: Sebastian Scherer

Boiler Inspection Using Unmanned Aerial Vehicles

- Creating a Planning algorithm to optimize the flight time of UAV for inspection purposes.
- Developing a method to generate way points for effective inspection of the boiler given a 3D map.

Publications

Harjatin Singh Baweja, Tanvir Parhar, **Srikanth Malla** "Gesture Control Interface Using Machine Learning Algorithms." *International Journal of Advanced Research in Computer Science and Software Engineering* (IJARCSSE),Volume. 5, Issue. 09 (2015) ISSN: 2277-128X.

Vaegae Naveen,Venkata Lakshmi Narayana K, **Srikanth Malla** "Development of an Intelligent Pressure Measuring Technique for Bellows using Radial Basis Function Neural Network" *Sensors and Actuators*, A. Physical (Under Review)

Course Projects

Drawing planar robotic arm
Robotics and Automation — Fall 2013

- Developed a 3 degrees of planar Robotic Arm. Image Processing is done using Matlab, Image Processing Toolbox.
- Used Forward Kinematics to convert Cartesian coordinate space to angular space.
- Used Inverse Kinematics to convert Angle feed-back taken using Potentiometer to Cartesian space. Implemented a PID control to control the position of the end effector.

Temperature control of a non-linear system using fuzzy logic
Neural Networks and Fuzzy Logic — Fall 2013

- Simulated the Fuzzy logic model in Matlab using the Fuzzy rules. Compared the results with variation of Fuzzy membership functions and Fuzzy rules.

Research Projects

Inventory management robot
Texas Instruments Innovation Challenge 2015
Robotics, Computer Vision, Designing, Electronics — Mar 2015 - May 2015

- Developed a hardware model similar to Co-Bot.Used Kinect sensor for RGBD mapping and localization with the help of RTABMap package.
- Developed person following application using Kinect Sensor.
- Created a 3 Degrees of Freedom Robotic Arm for the application of picking the objects.

Gesture controlled quadrotor using kinect sensor — Oct 2014 - Dec 2014
Advisor: Arul Mozhi Verman, *Assistant Dean of Electronics and Communication*

- Developed a gesture control Interface between Kinect Sensor and Parrot ARDrone.
- Used Neural Networks to train the Complex Gestures.

Home automation using leap sensor
Won 1st Prize in Makethon 2014, HCI, Embedded Systems — Oct 2014 - Dec 2014

- Created an interface between Leap Sensor and Arduino (ATMega328) Micro-Controller.
- Developed Robust Gesture Control using Time Series Neural Networks.

Person following quadrotor
Embedded Systems, Robotics, Android Programming — Apr 2014 - July 2014

- Developed a Mobile Application(android) to send the GPS co-ordinates to the Quadrotor.
- Utilized the Guided Way point Navigation Application with the help of pixhawk

PID tuning of quadrotor

Control Systems, Design, Algorithms Jan 2014 - Mar2014

- Implemented Manual Tuning of PID parameters using Arduino Micro controller.
- Developed system transfer function for Quadrotor using Matlab System identification Toolbox.
- Used different algorithms in Matlab, to find the PID parameters and compared them for better response.

Android based digital signal oscilloscope

Sensors and Signal Conditioning, Digital Signal Processing Jan 2014 - Mar 2014

- Researched on Micro-Controller's Analog to Digital Converters at different Clock frequencies.
- Implemented Fast Fourier Transform in Micro-Controller to analyze the frequencies in a real-time signal with a window approach

Linearizing below pressure sensor using radial basis function neural network

Soft Computing, Signal Conditioning *Advisor: K V L Narayana* Nov 2014 - Jan 2015

- Developed and Implemented RBF NN in Micro Controller to substitute signal Conditioning and to give better results than signal conditioning, where results are effected by different factors like change in resistance with temperature.

Additional Projects

Sphero

Robotics, Embedded Systems, Design, 3D Modelling Oct 2013 - Jan 2014

- Designed and 3D printed the hardware parts. Created a Mobile Application to control the motion of the Sphero.
- Programmed Micro-Controller to interface with the Smart Phone using Bluetooth Communication

Fixed wing UAV

Aerial Robotics, Telemetry Jul 2013 - Sep 2013

- Created a Live Telemetry Module to get the information like camera feed and send commands using MAV Link Protocol.
- Automated the Navigation of UAV using Pix Hawk Guided way-point Navigation

Professional Experience

Industrial Internship Dec 2014 - Jan 2015
South Central Railways, Vijayawada, India Supervisor: Amuta Prabha

- Developed a sensor module(Internet of Things) and web application to monitor the train location.Industrial

Stethostutor, Startup Sept 2015 - Present
Co-founder, Incubated at Project Olympus, CMU Advisor: KitNeedham

- Designed an android application (prototype), to make the learning system of stethoscope sounds for doctors and medical students easier and simpler.
- Currently, working on Fundraising and Marketing Strategies.

Relevant Proficiencies

Programming Languages: C, C++, Python, Java
Software: ROS, OpenCV, MATLAB, Multisim, Solid Works
Hardware: Microcontrollers (Arduino/Atmega, MSP 430), UDOO, Raspberry Pi
Operating Systems: Windows, Linux/Unix

Relevant Courses

Core:
Computer Programming and Problem Solving,
Data Structures and Algorithms,
Micro-controllers and its applications,
Digital Signal Processing,
Sensors and Signal Conditioning,
Control Systems,
Process Automation,
Digital Logic System Design,
Probability and Statistics,
Applied Mechanics and Thermal Engineering,
Applied Numerical Methods,
Complex Variables and Partial Differential Equations.

Electives:
Robotics and Automation,
Neural Networks and Fuzzy Logic,
Digital Image Processing,
Embedded System Design.

Awards and Achievements

MHRD Scholarship 2012-Present

Awarded by Ministry of Human Resources and Development, Central Government of India.

- Achieved 97% score in Senior Secondary School.

Special Achievers Award 2015, VIT University, Vellore, India.

1st place for Home Automation using Gestures, Makethon 2014 at VIT-Vellore, An initiative to spur innovations in healthcare & life sciences through co-creation.

2nd place in Aqua-bot competition, Gravitas 2013 at VIT- Vellore.

Best Design Award for Seat Belt Design for Pregnant ladies at MIT Hacking Medicine 2015.

3rd prize for Fixii, a Spray to Immobilize fractures, Jugaadathon 2014, Bangalore.

Outreach and Service

Field Robotics Center, CMU Sept 2015 - Present
Member

Event Coordinator Feb 2015
Makethon-2015

Creation Lab, VIT, Vellore 2013 - 2015
Coordinator

National Service Scheme(NSS) 2014 - 2015
Student Volunteer

IEEE-EDS club, VIT University 2012 - 2013
Technical Member

Project videos

goo.gl/kM3Zvi