Sibi Sankar [1]

CONTACT DETAILS
No.37, Club Road, Chetput,
Chennai 600031, Tamil Nadu, India.

E-mail: sibi.vasank@gmail.com
Phone No:(91)9445302000

EDUCATION

- **Bachelor of Engineering,Electrical and Electronics** [website] **CGPA: 8.35/10.0**
  SSN College of Engineering, Kalavakkam, Tamil Nadu, India. *June 2011 - June - 2015*

- **Senior Year,High school** [website] **Score: 96.25/100**
  Union Christian Matriculation HSS, *June 2010-April 2011*
  Nungambakkam, Chennai, Tamil Nadu, India.

RESEARCH INTERESTS
System theory and Control, Computer Vision,
Distributed control of multi-agent systems,
Intelligent control.

PUBLICATIONS

Journals

- Sanjay Shreedharan,Sibi Sankar,Senthil Kumaran Mahadevan. MATLAB - System Generator based Feedback Linearization and PID Control of Aero Thrust Pendulum using FPGA. *Aust. J. Basic & Appl. Sci*, December 2014.[.pdf]

Conference

- Leo, R.; Milton, R.S.; Sibi, S., "Reinforcement learning for optimal energy management of a solar microgrid," Global Humanitarian Technology Conference - South Asia Satellite *(GHTC-SAS), 2014* IEEE vol., no., pp.183,188, 26-27 Sept.

- Leo Raju, Sibi Sankar, Milton R S.Reinforcement Learning for Optimal Energy Management of a Solar Microgrid. International Conference on Information and Communication Technologies,2014 , Elsevier Computer Procedia,in press.

PROJECTS

Computer Vision Based Obstacle Avoidance of Differential Drive System using A* Search Algorithm *Jan-Feb 2015*

- Implemented Localization and Pose estimation based on arbitrary defined color contours detection using OpenCV C++ library.
- Implemented A* based search on the image to find the optimal path through a obstacle maze.
- Implemented a PID based control system based on the kinematics of the differential driving system.

Modelling and Feedback Linearization of Aero-Thrust Pendulum *Apr-June 2014*
Mentor: Associate Professor Dr. M.Senthil Kumaran

- Responsible for implementation of the single-channel PID controller with anti-reset for aero-thrust pendulum on Spartan 3E FPGA using Matlab/Xilinx(ISE)
- As a part of a team of two, implemented the data logging system on Spartan 3E FPGA interfaced to Matlab through Real time Windows target and aided in feedback-linearization of the non-linear system.
- Facilitated the implementation of the online tuning of PID parameters with on-board switch of the FPGA.

Semi-Autonomous Control of Quadrotor *Nov 2014-Present*
Mentor: Professor V. Kamaraj

- Responsible for implementation of the two-channel PID controller for roll and pitch control of a quadcopter on Spartan 3E FPGA using Matlab/Xilinx(ISE).
- Aided in the indigenous construction of the quadcopter frame and interfacing of the 9 degree of freedom inertial measurement unit with the FPGA.
- Aided in the testing and implementation of the control algorithm in arduino microcontroller.

Reinforcement Learning for Optimal Energy Management of a Solar Microgrid *July-Aug 2014*
Mentor: Assistant Professor Leo Raju

- Responsible for testing and implementation of three step look ahead Q learning algorithm and Coordinated Q learning algorithm for optimal scheduling of a battery in a smart grid environment using python.

[1]E-mail: sibi.vasank@gmail.com Permanent Address: No.37, Club Road, Chetput, Chennai 600031, Tamil Nadu, India.

Quickbot(Differential Drive robot) using Beaglebone Black *Mar 2014*

Source: Georgia Tech Course on Control Of Mobile Robots.

- As a team of two, implemented the quickbot and responsible for design of the three amps regulator circuit using 7805 and callibrated the infrared proximity sensor.
- Compiled from source the wifi driver rtl8192E firmware on the debian distribution of the Beaglebone black enabling wireless debugging of data.
- Tested various control theory concepts from PID control to hybrid automata model for switching between various behaviour models.

Space Invaders Game using TM4C123G *May 2014*

Source: University of Austin,course on Embedded systems.

- Interfaced the cortex-M4 processor with the Nokia 5110 LCD display used to display the graphics required for the game.
- Interfaced the microcontroller with a potentiometer which was used as a joystick to control the spaceship.
- Implemented the algorithm that provides for the joint operation of the DAC to produce the sound required in adherence with Nyquist theorem and interrupt triggering of the entire game.

Variegated Learner Anime Downloader(VLAD) using Wxpython *Oct-Nov 2013,Present*

- Responsible for the download link extraction algorithm and multi-threaded downloader implementation.
- Implemented a GUI based data scraping, multithreaded downloader using WxPython for anime shows and its source code was published in Github. [Github Repository]
- Planning on implementation of a recommendation system for the anime shows to improve useablity.

Relevant Coursework

ID-Verified

- **Introduction to Computational Thinking and Data Science** *Mar-May 2014*
  (Edx MIT Xseries) [verification link]
- **Embedded Systems Shape the world** *Jan-Mar 2014*
  (Edx University of Texas,Austin) [verification link]

Honor Code

- **Autonomous Navigation for Flying Robots** *May-June 2014*
  (Edx Technische Universitat Munchen) [verification link]
- **Fundamentals of Digital Image and Video Processing** *Mar-July 2014*
  (Coursera North Western University) [verification link]
- **Machine Learning** *Mar-June 2014*
  (Coursera Stanford University) [verification link]
- **Robot Mechanics and Control, Part I** *Mar-May 2014*
  (Edx Seoul National University) [verification link]
- **Autonomous Mobile Robots** *Feb-June 2014*
  (Edx ETH Zurich) [verification link]
- **Artificial Intelligence Planning** *Jan-Mar 2014*
  (Coursera University of Edinburgh) [verification link]
- **Control of Mobile Robots** *Jan-Mar 2014*
  (Coursera Georgia Tech) [verification link]
- **Introduction to Power Electronics** *Nov 2013-Jan 2014*
  (Coursera University of Colarado Boulder) [verification link]
- **Introduction to Computer Science and Programming** *Nov 2013-Jan 2014*
  (Edx MIT Xseries) [verification link]

Skills

Languages: C/C++, Java, Python, Bash scripting , LaTex
Operating Systems: Windows, Debian, Ubuntu, Fedora.
Computation: Matlab/Simulink,Xilinx(ISE), Matlab/Octave, Matlab/Embedded Targets.
IDE: TeXstudio, MPlab, GDB, Keil μ Vision, Arduino, Code Composer Studio, EagleCADSoft, PSPICE, Subversion
Controllers: Arduino, MSP430, T4C123G, Beaglebone Black, Spartan 3E Nexys 2.

Extra-Curricular Activities

- Won the 1st place as a part of Team ERF in the event Rush Hour, a line follower robotics event organized during PRAGYAN 2015 an international level Tech Fest, conducted by NIT, Trichy.
- Won the 3rd place as a part of Team ERF in the event Apollo 18, an image processing based robotics event organized during PRAGYAN 2015 an international level Tech Fest, conducted by NIT, Trichy.
- Won the 2nd place as part of Team ERF in the event Kronicles of Mars, an image processing based robotics

event organized during KURUKSHETRA 2015 conducted by College of Engineering,Anna University, Chennai.

HOBBIES

- Watching Anime and reading Manga.
- Gymnastics.
- Silambam.
- Playing video games and Basketball.