

ANIL HARISH

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Portfolio: www.anilharish.com

Education

Colorado State University, Fort Collins, CO

Aug 2016 – Dec 2018

Master of Science, Electrical Engineering – GPA (Program of Study): 3.5/4.0

Coursework: Robot Mechanics and Control, Robot Programming and Simulation, Biologically Inspired Robotics, Dynamics of Complex Engineering Systems, Embedded Systems Design, Engineering Risk Analysis, MEMS.

Visvesvaraya Technological University, Belgaum, Karnataka, India

Sep 2010 – June 2014

Bachelor of Engineering, Electronics and Communication – GPA: 3.4/4.0

Coursework: Artificial Neural Networks, Control Systems, Digital Image Processing, Information Theory & Coding.

Technical Skills

- Programming:** C/C++, Git, Ladder Logic, PLC, 6 Axis Robots – ABB, FANUC and KUKA, Python (Basic).
Packages: ROS, OpenCV, MATLAB, SIMULINK, RViz, Gazebo, PCL (Basic), TensorFlow (Basic).
Automation and Design: RSLogix 500, Allen Bradley MicroLogix, HMI, AutoCAD, SolidWorks.
Computer Vision and AI: Ant colony and Particle Swarm Optimization, Object tracking, Path Planning, Mapping, Navigation, Neural Networks, Extended Kalman Filtering.
Hardware: Arduino, Raspberry Pi, MSP430, XBEE, Silicon Labs C8051F500, Jetson (Basic).

Recent Projects

Ant Colony Optimization and Formation Control of Swarm Robots, *Graduate Research Project* **Spring 2018**

- Designed autonomous robots and omnidirectional IR transceiver to mimic swarm intelligence in ants.
- Optimized rapidly exploring random tree exploration algorithm to efficiently search food source by 1.7x using **ROS** and **OpenCV**. Simulated sensor noise, distortion, and environment dynamics in **Gazebo**.
- Performed SLAM by exploiting Rao-Blackwellized particle filter using ultrasonic rangefinders to lower cost.

Task Level Controller for 6 Axis Robots, *ECE 455 and MECH 564*, Colorado State University. **Fall 2017**

- Developed nonlinear controller in **MATLAB** to linearize & decouple robot dynamics model in the task space.
- Increased tool centre point accuracy to 0.3mm using Damped Least Squares and Runge – Kutta 4th order method to calculate joint angles for trajectory generation and path planning validated in **SIMULINK**.
- Investigated multivariable control for monitoring tool process parameters to anticipate quality issues.

Professional Experience and Certifications

VOLVO Group, Application Hosting Services .NET, *Infrastructure Engineer*

Aug 2014 – Jul 2016

- Optimized BMC Remedy algorithm for impact analysis of infrastructure changes, decreasing response time by 3 milliseconds per configuration item as **Change Advisory Board representative**.
- Solved 7 Major Incidents as OS and storage **Root Cause Analysis Engineer** in windows servers and clusters hosting revenue critical applications (Siemens PLM, IIS, SID etc).
- Developed PowerShell scripts for periodic upgrade of VMware host version and Symantec Endpoint Protection in 8500+ production servers resulting decrease in deployment failures by 40%.

TATA POWER SED, Research and Development, *Embedded Systems Intern*

Spring 2014

- Built Software Defined Network for radar centric defence system using erlang based OpenFlow controller.
- Developed drivers for C8051F500 Microcontroller and SPARTAN 6 FPGA to interface between the devices in the control plane and the data plane in red and black security.

AXELOS Global Best Practice: ITIL® Certified APMG International. Certificate No. 03107580-02-ZEKV **May 2015**

Leadership and Awards

Performance Award, **VOLVO**: Best engineer of 1st Quarter 2016, for client satisfaction (ASSA ABLOY) and most reliable deliveries, ITIL Standard Operating Environment implementation, and ticket resolution interval.

Co-Founder and Secretary, *IEEE Student Branch, Visvesvaraya Technological University*

- Organized Elements & Optimus IEEE technical fests hosting 12 institutions & 2000+ students promoting STEM.

Team Leader, *Fixed Wing UAV Workshop*, Aerotrix: Won 1st place for best design and fabrication among 16 teams for implementing winglets to reduce drag and improve battery efficiency by 10%.