ABHINAV KARTHIK SRIDHAR

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*Current EE graduate student with a concentration in Control systems and industry experience in **Robotics, Controls and Automations.***

EDUCATION

MASTER OF SCIENCE, **Electrical Engineering (Control Systems)**   CGPA 3.94/4.0   *Arizona State University - Tempe, AZ*   *08/16 – 05/18*

BACHELOR OF ENGINEERING, **Electronics and Instrumentation**   CGPA 9.1/10   *Anna University - Chennai, IN*   *08/11 - 05/15*

Academic Coursework: Computer Controlled systems, Linear systems Theory, Feedback systems Theory, Design of Experiments, System Identification, Digital Control, Random Signal Theory, Artificial Neural Networks, Multivariable Control Systems Control systems

Certifications: PLC Programming I (Udemy), Artificial Intelligence for Robotics- Introduction to self-driving Cars (Udacity), Introduction to Deep Learning

TECHNICAL SKILLS

S/W Knowledge: MATLAB, SIMULINK, NI LabVIEW, Minitab, Microsoft Suite, Informatica, Adobe Suite, Tensor Flow, Factory Talk, AutoCAD, OriginLab

Programming Languages/Other Skills: C, C++, SQL, Arduino, RS Logix –PLC Programming, Python, CompactRIO (cRIO 9074), ROS

WORK EXPERIENCE

Control Systems Engineering Intern, *Nokia Bell Labs* — *Murray hill, New Jersey, USA*   *06/17 - 08/17*

- Worked alongside the Optical networks and devices research wing to build a fast-tunable WDM optical filter that will be implemented in next generation PON networks. Filter was designed using a MEMS chip with fabry-perot filter and tilt control was achieved using electromagnetics.
- Implemented a Bang-Bang controller using NI LabVIEW to achieve wavelength switching within 5 milliseconds in the optical filter by controlling the amount of current passed to the coil in the electromagnetic setup. Built an optical filter that has a quality factor of 50 which has large tilting angles (+/- 75˙). Helped in writing BASIC codes with various instruments (Agilent 33220A), Digital Oscilloscopes and multimeters.
- Performed real time acquisitions using NI-DAQ, HP-DAQ based on requirements of measurement uncertainty and filter requirements.

Control Systems Design and Simulation Engineer, *AZloop – Arizona's Hyperloop team – Voluntary* — *Tempe, USA*   *10/16 - 04/17*

- Developed basic controls for the pod with various devices like temperature/pressure sensors and other electromechanical devices Used NI DAQ to acquire real time data from these devices. Programmed the microcontrollers on board for central organization and commands.
- Used NI LabVIEW and CompactRIO (cRIO 9074) controllers to implement the control systems on the pod. Aided with developing the architecture with redundant controllers -modelled, tested, debugged the integrated system with Hardware-in-the-loop.

In-plant Electrical Engineering Controls Trainee, *Chennai Petroleum Corporation Limited* — *Chennai, IN*   *06/14 - 06/14*

- Worked alongside central control room engineers on Electrical, Power and Control systems division of the refineries. Monitored and controlled various parameters of the plant: the temperature, pressure, flow of chemicals with the help of PLC and SCADA. Learnt basics of Allen Bradley and Siemens PLCs and SCADA (InTouch), ability to read controls and Instrumentation wiring diagrams in AutoCAD (Electrical).
- Interpreted technical realization of process flow using PIDs and Electrical control systems and ensured LOTO (Lock-out Tag-Out) for safe shutdown. Collaborated with Test engineers for controlling valves, EM-Sensors (pressure, Temperature) & common field instruments using HMI.

Applications Developer, *Inautix Technologies - A Bank of New York Mellon Company* — *Chennai, IN*   *06/15 - 06/16*

- Database architect of the BDS team. Used Oracle-SQL to maintain a central repository for the team, thereby accessing the data and performed integration into applications. Worked with UNIX systems to access secure servers. Used Informatica for ETL, building enterprise data warehouses.

ACADEMIC RESEARCH PROJECTS AND PUBLICATIONS

SMART BIKE – AUTONOMOUS SELF BALANCING BIKE WITH PERCEPTION   *12/17 - current*

Currently working on the self-balancing control of the bike and perception for obstacle avoidance and navigation with Scanse Sweep LIDAR and camera. Using Kalman Filter for state estimation and filtering. For SLAM, the path planning framework to be used will have an (A*) mechanism for search.

CONTROL OF TIP TILT PLATFORM FOR PARALLELIZATION OF PLATES TO STUDY THERMAL RADIATIONS   *08/17 - 10/17*

Worked on control of a Tip-Tilt plus Z stage platform for parallelization of two plates. Designed an automated NI LabVIEW program to achieve control over the tip-tilt platform by switching between the actuators and ensuring robustness.

AUTONOMOUS LINE FOLLOWING TURTLE BOT USING SYSTEM IDENTIFICATION TECHNIQUES   *01/17 - 04/17*

Built a line following autonomous robot that could traverse along a straight line. Identified the system using system Identification techniques and fitted a PID controller to the same for good command following using Arduino and MATLAB. Used Kalman filter for state estimation.

DOUBLE MOON CLASSIFICATION PROBLEM USING MULTILAYER PERCEPTRON AND TIME SERIES FORECASTING   *08/17 - 10/17*

Worked on creating a multilayer perceptron using artificial neural network techniques on the classic double moon classification problem for various distances between the moons. Forecasted future time data with limited data using a gradient descent algorithm in Neural networks using MATLAB.

DESIGN & MODELLING OF CAR CRUISE, LIQUID LEVEL, TEMPERATURE IN A TUBE CONTROL using MATLAB   *09/16 - 12/16*

Obtained the differential equation of a car/tank/tube by analyzing the various parameters and performed Hardware in Loop (HIL) testing using PC104. Used MATLAB and SIMULINK to dynamically model and control the plant.

MASTER SLAVE BOT – THERMAL DETECTION CAPABLE ROBOT FOR HUMAN SEARCH OPERATIONS   *09/14 - 02/15*

Designed a stable and robust master slave robot configuration, fitted with thermal sensors using (**LPC1700**) and Arduino Uno processor with (**SRF04**) ultrasonic sensors for navigation for human detection (disaster recovery).