ABISHEK CHANDRASEKHAR

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EDUCATION

The University of Texas at Dallas   Jan 2016 - Dec 2017
M.S., Mechanical Engineering - Dynamic Systems and Control   GPA - 3.37/4

Anna University, India   Aug 2010 - Apr 2014
B.E., Mechatronics Engineering   GPA - 7.75/10

RESEARCH

Application of Control Theory in Cyber-Physical systems
- Developed controls laws in python and C for Anki Overdrive cars in a Linux environment using Anki's SDK
- Each car was controlled independently by a Raspberry Pi paired with ultrasonic sensors on top of the cars
- Simulated platooning using a PD controller in python to maintain nominal distance between the cars
- Currently working on simulating malicious attacks on vehicle platoons

Github: https://github.com/Abishek92/Anki_Overdrive_Platooning

PROFESSIONAL EXPERIENCE

ATS ELGI, **ELGI Equipments Ltd.,** India   Jun 2015 - Oct 2015
Robot Programmer
- Developed a program for a FANUC 120iC 10L Arc Welding Robot for welding three workstations
- Reduced the cycle time of the arc welding process from 76 to 62 minutes
- Successfully improved weld quality by increasing fillet size, eliminated porosity, undercut and spatter

Difacto Robotics and Automation Private Ltd., India   Aug 2014 - Mar 2015
Trainee Engineer
- Performed material handling and spot welding using FANUC LR 100iB and FANUC R2000iA 165F Robots
- Created off-line programs for material handling using ROBOGUIDE and spot-welding using CSR
- Designed robot pedestals using the DriveWorks module in SolidWorks and created AutoCAD drawings

ACADEMIC PROJECTS

Idle speed control and Air-Fuel ratio control of an Internal Combustion Engine   Jan 2017 - May 2017
- Built a Simulink model of a 4-cyl 2.4 L engine to model a plant in discrete domain
- Optimized the throttle angle to maintain an idle speed of 800 rpm using a SISO controller
- Developed and tuned a PID controller for the idle speed control and achieved zero steady state error
- Utilized Root Locus techniques to develop a controller to compare with the results of PID control

Humanoid Robot: CAD and Kinematic model   Aug 2016 - Dec 2016
- Created equations to determine the forward kinematics of the limbs using Screw Theory
- Calculated the position of the end effector (leg) using the Screws package in Mathematica
- Created a CAD model of the humanoid robot using the values used to calculate kinematics

PD Control of a planar elbow manipulator   Aug 2016 - Dec 2016
- Created a MATLAB code to simulate the dynamics of the two-link robot
- Implemented a PD controller to achieve desired set points of the end effector position
- Tested different initial conditions and plotted the link responses and phase space trajectories

TECHNICAL PROFICIENCIES

Controls   : Matlab, Simulink, C, C++, LabVIEW, RSLogix, Mathematica, Mathcad, Simscape, Python
Mechanical   : SolidWorks, Creo, Pro engineer (Certified), Auto CAD, Draftsight, Hyperworks, Ansys
Robotics   : CimStation Robotics (CSR), ROBOGUIDE, FANUC TP programming

RECOGNITION AND LEADERSHIP
- Awarded Mahatma Gandhi Merit Scholarship for Academic Excellence   2010 - 2014
- President of Students for the Exploration and Development of Space - KCT Chapter   2013 - 2014
- President of the Academic Wing of CHANGE, a student initiative   2012 - 2014