APURVAKUMAR JANI

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Summary

- Self-driven professional with 4+ years of experience in Mechatronics and Design. Passionate about making career in robotics and automation industry. Looking for full time opportunities.

Education and Training

09/2020
Buffalo

Master of Science (Thesis) in Mechanical Engineering (Major in **Mechatronics and Control**)
University at Buffalo, SUNY

- **3.9 GPA**
- **Coursework**: Mechatronics, Advanced Control Systems, Manufacturing Automation, Continuous Control System, System Analysis, Design and Optimization, Heuristic Optimization, Human Robot Interaction
- **Teaching Aid/Grader** : Digital Control Systems, Manufacturing automation, Design project

06/2016
India

Bachelor of Science in Mechanical Engineering Technology
MS University, Vadodara

Skills

- **Domain skills:** RoboticControl systems, Mechatronics design, Optimization, GD & T, DFMEA
- **Programming Languages & Software**: Python, C++, C#, MATLAB, Simulink, LabView, PLC ladder
- **Operating Systems**: Linux, ROS,MAVROS
- **Embedded Protocols**: CAN, I2C, UART, SPI, Bluetooth
- **CAD & Product Management** : Solidworks, CATIA V5 – V6, Siemens Team enter, Enovia PLM, Ansys, PTC Creo

Experience

12/2018 - Current
HILS Lab, University at Buffalo
Buffalo, NY

Robotics Researcher

- Developed **robotics control framework** using ROS, Python and C++ for robotic arm
- Designed modular version of on variable stiffness magnetic gripper (Gripper patented by HILS lab).
- Implemented **real-time stiffness control** of fingers via Touch display and developed GUI integrated with Raspberry pi
- Collecting and **analysing sensor data** for experiments
- Building **3D printed** prototypes
- Educated undergraduate students on laboratory protocols and activities.
- Supported principal investigators during research into Human Swarm Interaction.

07/2016 - 07/2018
TATA Technologies

Design R & D Engineer

- Designed **electro-mechanical parts** of vehicle and released drawings for the supplier.
- Ensured integration of vehicle by establishing communication between cross functional teams.
- Solved part failure related issues using 8D & DFMEA tools.
- Recommended design modifications to eliminate component and system malfunctions.
- Monitored design processes from conceptual phase through construction.
- Provided technical support at the client location
- Managed 3 junior diploma professionals

Publications

- Hemanth Manjunatha, Joseph Distefano, Apurv Jani, Ehsan Esfahani, Souma Chowdhury, Payam Ghassemi , '*Using Physiological Measurements to Analyze the Tactical Decisions in Human Swarm Teams*', SMC- 2020 (Paper accepted)
- Thesis, *Interactive Shape Control of Swarm of Mobile Robots using Geographic Information System (GIS) based Shape Model*, University at Buffalo, SUNY, 2020

Relevant Projects

Modular design and real time grasp control for variable stiffness end-effector

- Conceptualized modularity of gripper for making it commercially ready
- Implemented real-time stiffness control of fingers via **Touch display (HMI)** integrated with Raspberry pi
- **Schunk LWA4P** manipulator used for experiments. **C++** and **ROS** are used to develop control framework

Product shape detection using vision sensor

- Implemented product shape detection for conveyor belt application using **Vision sensor**
- **OpenCV** is used for image processing and V-rep is used for simulation

Servo Motor Parameter Estimation & control by interfacing hardware with LabVIEW Software

- Interfaced QUANSER SRV02 series rotary servo plant to computer via LABVIEW software
- Designed and tuned of PID controller circuit for motor and parameter estimation

Nonlinear control of 2 link manipulator using Disturbance Observer

- Developed of nonlinear model of plant using Simulink
- Control Performance improved with the addition of Disturbance observer

Certification

SIEMENS Basics of PLC

Activities

Board of Directors, Graduate Student Association UB

- Organized social gatherings for graduate students and conveyed student concerns to upper management

Led cleanliness campaign in suburban areas of Pune, India