DHRUV PARIKH, BTECH MECHANICAL

G-603, Garden Residency-2, South Bopal, Ahmedabad | 9099129720 | dhruvrg2000@gmail.com | LinkedIn

EDUCATION

Degree	Institute/School	University/Board	Year	Results
BTech (Mechanical)	School of Engineering and Applied Science	Ahmedabad University	2021	$3.57/4$ (89.25%)
HSC	Nelson's High School	GSHEB	2017	82 Percentile
SSC	Nelson's Higher Secondary School	GSEB	2015	96 Percentile

SUMMARY

Seeking role in Control Engineering/Automation/Robotics domain. Strong familiarity and adaptive to work with different tools and technologies. Motivated to learn, grow and excel as a Robotics Engineer.

SUMMER INTERNSHIP

Kalpataru Power Transmission Ltd. **Gandhinagar**

Developed a GUI tool for sending production data to server *July'19-August'19*

- Developed an intuitive GUI in python for reducing monotonous workload.
- The application identifies machining process in production drawings using image processing techniques.
- Automated several tasks by sending the data directly to the database over the network.

Developed a system for sending real time machine data over the network *June'19-August'19*

- Wrote python scripts in Raspberry Pi for detecting different operations of a hydraulic press and send that data to the server.
- Wrote Bash Scripts to manage and run files on boot

Jyoti CNC Automation Ltd. **Rajkot**

Trainee *June'19*

- Learnt entire manufacturing process of CNC machines from casting to assembly.
- Learnt different type of operations performed on CNC machines

TECHNICAL SKILLS

- **Solid Modelling**: CREO Parametric, Solidworks, AutoCAD
- **Programming Language**: Python, MATLAB/Scilab, Bash Scripting, JavaScript, C++,VBA
- **Markup Language**: Latex, HTML, CSS
- **Embedded Systems**: Arduino, Raspberry Pi
- **Database Management**: SQLite
- **Manufacturing**: 3D Printing, Laser Cutting, CNC Lathe-Mill, Die-Sinking EDM, Conventional Lathe, Milling, Slotter,Soldering
- **Industrial Automation**: Ladder Diagrams

UNIVERSITY PROJECTS

Collaborative Autonomous Aerial Robots - Final Year Project **January'21-April'21**

- From Scratch Flight Controller development for Quadrotor using low cost sensors and actuators.
- Developed State Estimation Pipeline for estimating states in lowest computation time possible.
- Developed Control Architechture built for reference tracking and disturbance rejection.
- Tested Multiagent Robots theory for Swarm Algorithms in pattern formation and obstacle avoidance.
- Made a simulator in python to test control and swarm algorithms of quadrotors from scratch (Eg: **LQR, PID**).
- Outcome: Position control was achieved in high wind environment. Currently expanding for trajectory optimisation.

Acrylic Bending Machine **Sept'20-Oct'20**

- Designed and Manufactured a low-cost benchtop Acrylic Bending Machine. Machine had two operating modes – autonomous or manual.
- Implemented a robust **PI temperature controller** and developed the electronics unit for the entire machine.
- Designed and Fabricated THT soldered circuit board.
- Achieved bending of acrylic till 10 mm thickness with robust temperature control to facilitate engineering experiments.
- Currently at use at Ahmedabad University Mechanical Engineering Lab for aiding in research projects (Link).

Inverse Kinematics for a 6-DOF Kuka Robot **Febuary'20-May'20**

- Calculated DH Parameters for 6-DOF robot and performed Forward Kinematics
- Made a novel algorithm for solving inverse kinematics for the robot and simulated in MATLAB
- Quintic trajectory generation with singularity avoidance.

Designing and Manufacturing of a Benchtop Wind Tunnel **August'19-December'19**

- Designed a wind tunnel in **Creo Parametric** using mathematical equations for steady state flow.
- Manufactured the wind tunnel using laser cutter and solved convective heat transfer on test object.
- Developed electronic circuits which allowed measurement of readings from handmade thermocouples and control the experiment parameters.

Window Cleaning Robot **Feb'19-April'19**

- Designed and developed a prototype of a window cleaning robot which could be attached to a wall by a high rpm fan.
- Designed an algorithm which controlled the path of robot.

PERSONAL PROJECTS

Control of Mobile Robots in SWARM setting **June '20**

- Modelled kinematics equations for a differential drive robot
- Used **PID Control** to perform Goal to Goal behaviour
- Developed a simulator in python from scratch for visualising the robots and deployed multiple robots in that environment to perform triangulation

"The Recipe" **June'20 - July'20**

- Developed a website for suggesting recipes based on ingredient.
- Used Python to manage recipe data, and JavaScript to choose the recipe by parsing the data.

CERTIFICATIONS

- Certified SolidWorks Associate (CSWA)
- Design for CREO Engineers
- Control of Mobile Robots - from Coursera by Georgia Tech
- Online Faculty Development Programme on "Control Systems & Sensors Technology" at College of Engineering, Pune
- Digital Signal Processing 1: Basic Concepts and Algorithms - from Coursera by EPFL
- Neural Networks and Deep Learning - From Coursera by deeplearning.ai
- Interactivity with JavaScript - From Coursera by UMich
- Intelligent Machining - From Coursera by SUNY

POSITION OF RESPONSIBILITY

- **Instructor**: Workshop on building RC Car using arduino at Ingenium '2020 (Techfest Ahmedabad University).
- **Teaching Assistant**: Courses: Differential Equations and Linear Algebra (2020); Design, Innovation and thinking (2021).

CO-CURRICULAR ACTIVITIES

- Co-Instructor of Arduino Workshop at Ingenium'20
- Conceived, designed and conducted RC race at Ingenium'19 (Techfest Ahmedabad University).
- Attended Google Explore ML Certification workshop (Beginner and Intermediate Level) in 2019.
- Completed Workshop Certification Course at Fabrication Shop, Ahmedabad University in Dec '17 – Jan '18.