

EDUCATION

Undergraduate B.E. (Hons.) Manufacturing Engineering, Overall CGPA - 7.76 Coursework: Robotics, Control Systems, Object-Oriented Programming, Mechatronics and Automation	BITS Pilani, Pilani Campus, India	Aug 2016 - Jul 2020
High School - Grade 12 Percentage - 95.8, first rank in school	A.N. Public School, India	Aug 2014 - May 2015

EXPERIENCE

Software Engineer Solutions Business Unit, sub-BU – Energy, Utilities and Payments	CGI, Bangalore	Sept 2020 – Present
Software Developer • Will be working on implementing design changes as per new requirements for specific clients • Working on understanding of product functionality by testing UI and corresponding database	CLS (Continuous Linked Settlements) Manager	Dec 2020 – Present
Technical Training • Worked with shell scripting, C programming, C++ programming, data structures and OOP concepts • Worked with RDBMS fundamentals and Oracle PL/SQL • Inventory Management System : implemented using CORBA • Used an IDL (Interface Definition Language) file with log and a product module • Used MICO (micro-CORBA) for implementing a client-server architecture using C++ • Implemented the log module for authenticating user and product module for storing product details		Sept 2020 – Dec 2020
Professional Development Training • Skills gained – professional communication and technical writing		Sept 2020 – Oct 2020
Off-Campus Thesis Model-Based Design and Control of a Pneumatic Robot Joint, Supervisor - Dr Rainer Nitsche • Remodelled a pneumatic cobot joint model programming custom modular Simulink library blocks in C • Implemented flatness-based position and pressure controller to control the nonlinear pneumatic joint • Implemented derived simulation model on a testbench using dSPACE hardware system MicroAutoBox • Documented experimental setup and simulation using Latex for being used by the subsystem further	Festo AG & Co. KG, Germany	Jul 2019 - Dec 2019
Internship Control System Design, Supervisor - Prof Shin Wakitani • Worked on system identification of linear and non-linear systems; built a motor controller • Developed a PID, I-PD, and a fuzzy controller for a non-linear system in the presence of disturbances • Remodelled a metal temperature control system from C# to MATLAB, validated it using HIL simulation	CSE, Hiroshima University, Japan	May 2018 - Jul 2018

TECHNICAL PROFICIENCY

C++, C, Oracle SQL, PL/SQL, Shell Scripting, ROS, MATLAB, Simulink, ControlDesk - dSPACE, Python, Git, Latex, Gazebo, Java, Interface Definition Language (IDL), CORBA etc.

PROJECTS

Design of a flexible light-weight manipulator arm • Developed a dynamic and kinematic model of 2-DOF RR manipulator with flexible joints and rigid links • Designed a PID controller to eliminate the inaccuracy introduced due to compliance	Aug 2018 - Dec 2018
Design of a multi-copter • Developed a teleoperated hexacopter using Pixhawk flight controller tuned using Mission Planner • Optimised the weight to 1.5 kg and a payload of 800 grams at 50 percent throttle	Oct 2018 - Nov 2018

Slicing algorithm for 3-D printing**Jan 2019 - Apr 2019**

- Developed a program in MATLAB to generate CNC code for a 3-D printer using CAD files

POSITION OF RESPONSIBILITY**Vehicle Dynamics Lead - Inspired Karters - Formula Student****Aug 2016 - Mar 2019**

- Led Vehicle Dynamics subsystem of a 50 member student team
- Designed and manufactured the wheel assembly for a Formula Style open-cockpit vehicle
- Worked with sponsorship team; once raised one lakh INR in a week to resolve sudden engine problem
- Participated in Formula Bharat'19; stood 4 in Cost Competition; 17 overall nationally 70 among team

Founding member and Co-editor - Alumni Relations Cell, BITS Pilani**Aug 2017 - Sept 2018**

- Initiated and worked as a co-editor for cell's magazine BITS ECHO
- Organised and coordinated reunions comprising of alum batches from 1968 - 2000
- Implemented a strategy to update the old and scattered alumni database of 1.5 lakh alums
- Developed an initial layout for functioning of the cell in subsequent years

CERTIFICATION**Self Driving Car Nanodegree – Udacity****Jan 2021 – Present**

- Working on a lane detection system to identify lanes on the road using image and video stream
- Will work on deep learning, sensor fusion, localisation, mapping and control projects in next modules

C++ Nanodegree Program - Udacity - [github](#)**Jun 2020 - Jul 2020**

- **Route Planning:** Developed an application to find path between two points on a map using A* search
- **System Monitor:** Developed a Linux system monitor using C++ and OOP concepts
- **Memory Management ChatBot:** Developed a chatbot with efficient memory management techniques
- Used smart pointers to avoid memory leaks during memory allocation from the heap
- **Concurrent Traffic Simulation:** Built a simulation for facilitating traffic flow between intersections
- Used a real urban map for the simulation where each vehicle ran on a separate thread
- **Snake Game:** Rebuild the game to run with efficient memory management and OOP techniques

Robotics Software Engineer - Udacity - [github](#)**May 2020 - Jun 2020**

- **Build my world:** Built a simulated environment in Gazebo for housing the robot
- **Go chase it:** Built a differential drive robot with LIDAR and camera with URDF description
- Implemented a ROS package called ball chaser containing a C++ nodes:
- With a service to drive the robot by controlling its linear and angular velocities
- To read, analyse camera images; if a white ball exists, request a service to drive the robot towards it
- **Where am I:** Localized the robot using adaptive Monte Carlo Localization in a map simulation
- **Map My world:** Created 2D occupancy grid and 3D octomap of simulation with RTAB-Map package
- **Home Service Robot:** Used ROS Navigation stack for path planning from pickup and drop off location

SCHOLARSHIPS**Merit-Cum-Need Scholarship****2016 - 2019**

40 and 25 % tuition fees were waived off for II semester and for five semesters from 2017 - 2019

First Degree Project Funding**Apr 2019**

Granted 28,000 INR for developing the multi-copter by the Mechanical Engineering Department

Mahendra Ram Dalmia Memorial Scholarship**Aug 2018**

BITSAA scholarship, 25% of my tuition fees were waived off, which is around 31,000 INR

SHRI S. VAISH MEMORIAL SCHOLARSHIP**May 2018**

Granted 2,22,250 INR via Vaish Foundation to pursue internship at Hiroshima University

EXTRACURRICULARS**Writing**

- Here is the address of the blogs where I write: [poems](#), [excerpts](#)