Naveen Anil

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Education

University of Maryland — College Park, MD
M.Eng, Robotics | GPA: 3.1/4.0 — August 2022 - May 2024

APJ Abdul Kalam Technological University — Kerala, India
B.Tech, Mechanical Engineering | GPA: 3.2/4.0 — September 2015 – June 2019

Technical Skills

Programming: C++, Python, HTML, MATLAB, OpenCV,
Software: ROS, ROS2, SolidWorks, PTC Creo, CATIA, Ansys, AutoCAD, Docker, Linux, Adobe Illustrator, Visual Studio Code, Git
Engineering: 3D Modeling, Additive manufacturing, Path Planning, Machining Operations, Kinematics

Professional Experience

Maryland Robotics Center — College Park, MD
Graduate Research Assistant — January 2023 – Present

- Working on mechanical hardware design and development for an **Autonomous Surface Vehicle (ASV)**
- Developed a marine environment in **Gazebo** for the SITL simulation of the ASV to test navigational capabilities
- Developed a control software based on **ROS** for achieving autonomous navigation

SFO Technologies R&D Solutions — Kerala, India
Design Engineer — July 2019 – July 2022

- Performed the design and development of products in different engineering domains like healthcare, automobile, defense, aerospace, etc. Created CAD models and drawings in SolidWorks. Used Ansys for kinematic and dynamic analysis
- Implemented **DFM and DFA design techniques** for the fabrication and integration of robots, medical devices, and power cabinets for customers like Thales USA, Apple, Samsung, Stryker, General Electric
- Led a team of **4 people** in **automating** the in-house production line

Noventum Technologies Pvt Ltd — Kerala, India
Chief Executive Officer — March 2018 - August 2022

- Led a team of **8 people** with the vision to eliminate the direct role of humans in dangerous scenarios with the effective use of technology and signed the initiative to serve as the R&D wing of **HUMANITAD (US based non-profitable organization)**
- Successfully raised **USD 25,000** in seed funding
- Performed **SITL simulation** in **Gazebo** for autonomous control of an **aerial vehicle** using **ArduPilot**

IROV Technologies Pvt Ltd — Kerala, India
Electro-Mechanical Design Intern — June 2018- July 2018

- Improved the navigation and path planning of an underwater robot through the integration of **ROS** and **SLAM**
- Simulated the robot in **Blender** for design optimization and functionality check
- Incorporated **sonars** on the remotely operated vehicle for maneuvering in turbid conditions

Awards and Leadership

- **First Place**, Maker event 2018 conducted by Cognizant (Led a group of 8 members)
- **2nd Runner-up**, ARM Design Contest 2017 on autonomous vehicles (Led a group of 5 members)
- **Most Promising Project Award**, ARM Design Contest 2018 conducted by ACCS, ARM, and TVS motors
- **Activity Head,** Muthoot Innovation Center, India

Projects

Amphibian Drone | CATIA, Raspberry Pi 3, Pixhawk, ROS — September 2019 – December 2020

- Developed a drone capable of navigating in both aerial and underwater conditions
- Designed a **control system** that enables it to maneuver in both environments in autonomous mode

Collaborative Robotic Arm | SolidWorks, Ansys, AutoCAD, Arm Cortex-M4 — January 2019 – April 2019

- Performed the motion study of a **5 DOF robotic arm** by generating **URDF files** in **SolidWorks** and exporting them into the Gazebo simulation. Implemented **forward and reverse kinematics** to simulate pick and place trajectory
- Carried out the structural analysis to determine motor specifications and payload capacity
- Supervised a group of **4 people** in designing, fabrication, and software integration of the robotic arm

Autonomous Vehicle System | Fusion 360, DraftSight, Raspberry PI 3 — October 2017 – March 2018

- Developed a control algorithm for autonomous navigation based on image processing
- Devised a **linear mechanism** using electro-mechanical actuators to brake the vehicle based on a control signal

Robot Path Planning: Implemented **Dijkstra**, **A***, and **RRT*** algorithms for holonomic and non-holonomic robots