Prannoy Namala

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Education

University of Maryland, College Park, MD — Expected May 2022
Master of Engineering in Robotics — *GPA: 3.71*

Amrita Vishwavidyaeetam, Bangalore, India — July 2016 - May 2020
Bachelor of Technology in Mechanical Engineering — *GPA:8.07/10*

Skills

Languages: Python, C/C++, MATLAB
CAD Softwares: Solidworks, CATIA, Creo, AutoCAD Inventor
CAE Tools: Ultimaker Cura, Prusa Sli3er
Framework: ROS **Office Suites**: Microsoft, Google
Simulation Softwares: Gazebo, CoppeliaSim

Technical Experience

Institute of Systems Research — College Park MD
Graduate Research Assistant at SBSD Lab — *May 2021-Present*

ArtIAMAS
Collaborative Project

- ArtIAMAS is a cooperative agreement between ARL and UMD. Working under **Dr.Herrmann**, who is the principal investigator for one of the research area of the agreement
- Creating documentation for new users of the ARL Phoenix Autonomy Software
- Exploring pain points in the RDT&E process

Research Project - Data Driven Metareasoning for Multi-Robot Systems
Collaborative Project

- Investigating the question of how a team of robots should make decisions while performing a complex task
- Developing and testing our machine learning models for metareasoning on a team of robots defending a territory against a team of attacker robots

Technical Projects

Swarm Automation for Warehouses — College Park, MD
Team Member, 3-member team — *December 2021*

- Developed a swarm master to assign and orchestrate tasks
- Designed a swarm robot with a platform to perform the given task by the master
- Simulated the system using ROS and Gazebo in a world with
- Implemented good software engineeering practices such as OOP, Test Driven development, pair programming with design keeper, Agile Iterative Process(AIP), sprint planning and version control using Git

Neural Netowrks for Online Path Planning in a Partially Observab;e Environment College Park, MD
Team Member, 3-member team — *December 2021*

- Created a dataset for a robot with discrete action space using paths generated using A* and RRT* algorithms
- Implemented Exploratory Data Analysis techniques to understand and perform data preprocessing
- Designed experiments to select a network architecture to fit the data
- Created a simulation to observe the performance of the best network from the experiments

Autonomous Robot for Vaccine Delivery at Mass Vaccination Sites — College Park, MD
Individual Project — *May 2021*

- Utilized off the shelf components to create a fully autonomous robot capable of operating without human instruction
- Implemented various perception capabilities from which robot can understand information and act accordingly
- Designed various control loops to move the robot according to the instruction

- Assembled the robot. The assembly task included handling GPIO pins connecting various components to Raspberry Pi, setting encoders, camera mount to name a few

Implementation of a Literature in the Path Planning College Park, MD

Team Member, 2-member team *May 2021*

- Implemented "A Distributed & Optimal Path Planning Approach for Multiple Mobile Robots", Guo et al. 2002
- Created an experiment for two robots in a environment populated with obstacles
- Developed a path planning process based on the literature
- Simulated the process in Gazebo using 4 wheeled mecanum robots

Path planning for a robot with constrained action set using A* College Park, MD

Team Member, 2-member team *May 2021*

- Implemented A* and Dijkstra without considering robot constraints
- Created an action set for the robot with given constraints
- Visualized the movement of the robot using Opencv and Pygame

Design of LQR and LQG Controller for a 3-DOF System College Park, MD

Team Member, 2-member team *December 2020*

- Developed a non linear state space representation for a system with two pendulums which are attached to a cart restricted to move in one direction
- Linearized the non linear system and obtained the conditions for stability and controllability
- Designed a Linear Quadratic Regulator,a Luenberger observer and finally a controller using Linear Quadratic Gaussian method and verified the local and global stability of the system

Modeling and Controlling a Nurse Assisant Robot College Park, MD

Team Member, 2-member team *December 2020*

- Emulated a part of the real world behaviour of a nurse assistant robot by Diligent Robotics named Moxi
- Modelled the parts of the robot in Solidworks and exported in urdf format
- Developed a controller by programming ROS publishers and subscribers for the movement of the robot and the 6-DOF arm and performed a simulation of the robot arm control in a Gazebo environment

Implementing DFS in a Micro Mouse Simulator College Park, MD

Team Member, 3-member team *December 2020*

- Implemented Depth First Search for a land based robot to reach a goal position in a 16x16 maze
- Implemented object oriented programming to create categories of robots, store multiple variables of the maze
- Simulated the program in a micro mouse simulator

Previous Experience

Tata Motors Ltd. Dharwad, India

Intern with the Maintenance Department at LCV shop *June 2019-July 2019*

- Designed a safety setup with the RBT, which tests the tire rolling and braking for LCVs and MHCVs
- Implemented 5S standards, fire safety, operator safety and other industry standards
- Configured of torquing wrenches on the assembly line

Project with Elite Techno Group July 2018-August 2018

Intern *Bangalore, India*

- Fabricated an ATV from scratch in a 25 member team
- Vice captain of the team and managed all the departments to completely construct the vehicle
- Designed of tubular space frame by using floor plan approach in a 3-member team
- Analyzed the frame for certain loads by using CAE tool

Leadership Experience

College Tennis Team Bangalore, India

Team Member(Aug 2016- May 2019), Team Captain(Aug 2019- Jan 2020) *August 2016-January 2020*

- Organized practices and acted as a bridge between players and Physical Education Department
- Represented the university in the zonal competitions

SAE Student Chapter Bangalore, India

Executive Member *August 2018- March 2019*

- Collaborated with other student chapters in organizing events for college science fest
- Built Go-Kart and ATV vehicles and entered racing competitions