Chinmay Burgul

21 Dix St, Worcester, MA 508.723.6596 cmburgul@gmail.com https://github.com/cmburgul

Objective

Looking for full-time role in the field of robotics, motion planning and machine learning

Education

Worcester Polytechnic Institute (WPI) Aug '18 – May '20
Masters of Science in Robotics Engineering *GPA: 3.84/4.0*

SRM University Aug '12 – May '16
Bachelor of Technology in Mechatronics Engineering *CGPA: 8.73/10*

Technical Strengths

- **Programming languages :** C++, Python, MATLAB
- **Software & Libraries :** ROS-I, Move-it, Gazebo, TensorFlow, Pytorch, OpenCV, PCL, Catia
- **Related Skills :** Motion Planning, Reinforcement Learning, Deep Learning, Dynamics, Navigation & Control

Work Experience

Machine Learning Intern – Phood LLC, Boston, MA May '19 – Aug '19
- Built a working setup of an image classification framework for food items.
- Worked on pre-trained neural network models, Tensorflow, Cloud Clusters and AWS tools.

ROS Ambassador – The Construct Jan '18 – Aug '18
- Tutoring for ROS learning for motion planning and navigation packages.

Technical Engineer – Entra Mechatronics Pte Ltd July '16 – Mar '17
- Involved in developing food automation products, my roles included designing hardware by reverse engineering, strategic procurement of off the shelf components, vendor & OEM management

Projects

WIHM Manipulation using Deep Reinforcement Learning Techniques – WPI May '19 – Ongoing
- Path Planning in With In-hand Manipulation task on Friction finger setup with model free Reinforcement Learning Algorithms.
- Training with state-of-art algorithms on simulation of software environment.

Model-free Motion Planning on Dynamic Tasks – WPI Aug '19 – Dec '19
- Successfully trained a RL policy to perform a dynamic task of pushing a puck on 6 DOF fetch robot.
- Worked on Mujoco, Openai gym environment & openai stable baselines.

Exploration of latest skip-connection and regularization techniques – WPI Feb '19 – Mar '19
- Exploring types of skip-connection models (ResNet, DenseNet) and regularization techniques and try coming up with a new model and compare its performance on CIFAR-10 dataset.

Steerable Needle Design & Constraint Motion planning of MRI Robot – WPI Aug '19 – Dec '19
- Designed & prototyped a concentric cannula system, calculated trajectories for performing thermal ablation in minimal invasive surgeries of brain tumors.
- Worked on MRI safe neuro surgery robot & integrated cannula system to perform neuro surgeries in a constrained environment of MRI bore.

Autonomous Map Generation using RTAB Mapping and SLAM – WPI Feb '19 – Apr '19
- Developed an autonomous map generating algorithm in an unknown indoor environment.
- Worked with real time appearance based mapping (RTAB), SLAM, ROS Navigation stack, Gazebo simulation and frontier-based mapping algorithm.

High-Level Learning Symbolic Planning Method – WPI Jan '19 – Mar '19
- Leveraged high-level symbolic planning to investigate the high-level coordination strategy in manipulation when the low level planner fails after exploring the given tree.

Kinematic, Dynamic Analysis and Path Planning of DVRK – WPI Aug '18 – Dec '18
- Calculated forward kinematics, inverse kinematics, and dynamic models and worked on path planning of the DaVinci master.

Achievements

- Performance Award: University Rover Challenge - 2015, 2016 International Rank 12th and 9th respectively.
- South Asian Student Association (SASA), WPI (2019) – Elected as an Executive Committee member