

Jawad Mehmood Butt

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Career Objectives

I have made my mind four years ago, that I will become a good researcher. Until now, I have achieved one professional degree and now focus myself to do PhD that will help me towards research oriented works and will lead my way to become a researcher and professor.

Education

M.S. Control Science and Engineering

Shanghai Jiao Tong University	9-2016 / 3-2019	3.73 / 4.00
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B.S. Electronic Engineering

International Islamic University Islamabad	9-2012 / 6-2016	3.81 / 4.00
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Research Publications

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1. **J. M. Butt**, H. Wang and R. Pathan, "Design, Fabrication, and Analysis of a Sensorized Soft Robotic Gripper," 2018 IEEE 8th Annual International Conference on CYBER Technology in Automation, Control, and Intelligent Systems (CYBER), Tianjin, China, 2018, pp. 169-174.
 2. **J.M.Butt**, R. Pathan, and H. Wang, "Grasp pose optimization of soft robotic grippers via supervised experience based learning approach" in Autonomous Robot (Under Review)
 3. R. Pathan, H. Wang, H. U. Rehman, **J. M. Butt** and Y. Chen, "Design of Carbon Fiber Based Flexible Soft Heater for SMP Embedded Soft Actuators: A Step Towards Artificial Joints," 2018 IEEE International Conference on Robotics and Biomimetics (ROBIO), Kuala Lumpur, Malaysia, 2018, pp. 1208-1213
 4. A. Ayub, U. B. Zahid and **J. M. Butt**, "Implementation of Automation Medication Dispensing System based on Mobile Robotic Remote Sensing Unit," 2019 2nd International Conference on Communication, Computing and Digital systems (C-CODE), Islamabad, Pakistan, 2019, pp. 172-177.

Research Experience

Graduate Research Assistant (GRA)	Sep 2016 - 2019	Full Time	Autonomous Robot Lab, Dept. of Automation, SEIEE, Shanghai Jiao Tong University (GRA is degree requirement and I worked on research and projects) – (Please see the bottom of the transcript for proof)
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Professional Experience

Robotics Integration and Development	July 2019 - Sep 2019	Full Time	Shanghai Yikun Electrical Engineering Company
Robotics Integration and Development	Nov 2018- June 2019	Trainee (Part time)	Shanghai Yikun Electrical Engineering Company

Research Summary

Soft robots and reinforcement learning	Probabilistic model for soft robot with the help of bend sensor data Grasp strategy based on supervised reinforcement learning to reduce the non-linearity of soft robots during grasping elastic and deformable objects
Soft robots design	Design and fabrication of soft robotic gripper
Sensors for soft robots	Design and characterization of embedded pressure and curvature sensor for soft robotic gripper
SMP and soft robots	Carbon based heater for thermal shape memory polymer and used to enhance the stiffness of soft robots
Object Detection	The module for object detection and training object data for object orientation is created

Recent Projects

ROS development for Smart Hand	In this project, a smart hand consists of actuation and vision node are developed. The actuators used are Dynamixel servos, and the camera is Intel Real sense. The developed nodes are then linked with Universal robots with the help of ROS service, and a transformation from end effector to UR base is written. It is used to pick and place the object.
2D Lidar SLAM	For various mobile robot platforms, 2D Lidar SLAM is implemented, and used for warehouse mapping.
Smart Waste Bin	In China, waste sorting is now the trend. They are now separating waste into residual, hazardous and recyclable wastes. I developed the program for waste bin actuation that is linked with other parts of this system
Python development	I did the various robot automation project in Python
Autoware Vehicle Communication	I developed the ROS node for the communication between the Autoware vehicle system and our vehicle. This node works bisectionally, by transmitting the data from vehicle to system (topic to CAN bus) and transmitting the data from system to vehicle (CAN bus to topic).

Expertise

- Good in programming languages like **C++ , python and Matlab**
- Good skills in **ROS** (robot open source) framework and **linux**
- Good skills in **mobile robot navigation, 2D Lidar SLAM, and path planning** algorithms
- Worked on **AMCL, Navigation stack, move_based** in ROS
- **Moveit** motion planning system and **RVIZ** visualizations
- Worked with **Intel real sense cameras, Zed cameras, velodyne lidars** and others related sensors
- Intermediate level skills in **Autoware autonomous vehicle** systems
- Have a sound hardware and software knowledge of **industrial manipulators**
- Intermediate level skills in **Arm based microcontrollers**
- Have a sound theoretical knowledge of **deep learning, computer vision, & reinforcement learning** theories and practical programming libraries
- Good knowledge of **hardware/software integration for mechatronics systems**
- Good knowledge and practical experience with different **laser sensors, controller boards, and cameras.**

Honors and Awards

- Shanghai Jiao Tong University Scholarship for M.S.
- Merit based International Islamic University Scholarship for B.S.
- Nominated as a best paper finalist in IEEE cyber 2018 in Tianjin
- Received short PLC certified training
- Several prizes in Cricket (sports)
- In top 5 percent of students during college, high and secondary school

Language

- English – IELTS- 7.0
- Chinese Language Very Basic
- Native Urdu