

# Zubair Irshad

Website: [zubairirshad.com](http://zubairirshad.com) | Email: [muhammadzubairirshad@gmail.com](mailto:muhammadzubairirshad@gmail.com) | Phone: 470 309 7995

<b>EDUCATION</b>	<b>Georgia Institute of Technology</b> PhD, Robotics and Mechanical Engineering  <b>Courses:</b> Robotics, Deep Learning, Machine Learning, Intro to Robotics Research Linear Controls, Math. Methods in Applied Sciences, Reinforcement Learning, Computer Vision <b>CGPA: 3.86/4.0</b>	<b>Atlanta, GA, USA</b> Aug 2017 – Present
	<b>Ghulam Ishaq Khan Institute of Engineering Sciences &amp; Technology</b> B.S, Mechanical Engineering <b>CGPA: 3.76 / 4.0</b> (Rank: Top 5% in the class; High Distinction)	<b>Topi, Pakistan</b> Aug 2011 – Jun 2015
<b>WORK EXPERIENCE</b>	<b>Deep Learning Research Intern</b> SRI International (with <a href="#">Dr. Han-Pang</a> and <a href="#">Dr. Rakesh Kumar</a> ) <ul style="list-style-type: none"><li>Semantically-aware spatio-temporal reasoning agent for Vision-and-language navigation.</li></ul>	<b>Princeton, NJ</b> Summer 2020
	<b>Graduate Research Assistant</b> Robot Perception and Learning Lab (with <a href="#">Dr. Zsolt Kira</a> ) <ul style="list-style-type: none"><li>Sponsored under the DAPRA Lifelong Learning Machines (L2M) program.</li><li><b>Research Interests:</b> Hierarchical Imitation Learning, Deep Cross-Modal Perception, Visual Embodied Navigation.</li></ul>	<b>Atlanta, GA</b> Jan 2020 – Present
<b>PUBLICATIONS</b>	Muhammad Zubair Irshad, Chih-Yao Ma, Zsolt Kira, “ <b>Hierarchical Cross-Modal Agent for Robotics Vision-and-Language Navigation</b> ”, <i>International Conference on Robotics and Automation (ICRA)</i> , 2021.  Muhammad Zubair Irshad, Niluthpol Mithun, Zachary Seymour, Han-Pang Chiu, Supun Samarasekera, Rakesh Kumar, “ <b>SASRA: Semantically aware Spatio-temporal Reasoning Agent for Vision-and-Language Navigation</b> ”, <i>International Conference on Intelligent Robots and Systems (IROS)</i> , 2021 (Under Review).	
<b>RESEARCH</b>	<b>Learning and controls for scene-aware embodied-AI systems</b> <ul style="list-style-type: none"><li>Hierarchical Cross-Modal Agent for Vision-and-Language Navigation</li><li>Data-driven parameter identification for inverse dynamics of robotic manipulators</li><li>Combined mapping and learning for semantically-aware Vision-and-Language Navigation</li></ul>	
<b>ACADEMIC PROJECTS</b>	<b>Complex robot maze navigation through sign recognition using image classification and Robot Operating System</b> <ul style="list-style-type: none"><li>Completed a maze navigation task using Classification and ROS and demonstrated the algorithm on turtlebot3 robot</li></ul> <b>Autonomous Navigation and Obstacle Avoidance for mobile robots</b> <ul style="list-style-type: none"><li>Successfully navigated the turtle-bot robot to given waypoints while avoiding obstacles using camera, lidar and ROS</li></ul> <b>NuDAPR-ID: Efficient Regressor Matrix Computation for Dynamic Parameter Identification of Robotic Manipulators</b> <ul style="list-style-type: none"><li>Computed dynamic parameters of a 7-DOF arm for inverse dynamics learning</li></ul> <b>Temporal Supervised Learning Baselines for point-goal navigation in indoor photorealistic simulations</b> <ul style="list-style-type: none"><li>Solving point-goal navigation task in habitat indoor environment with a recurrent supervised learning approach</li></ul> <b>Vehicle Control for Autonomous Driving – CARLA Simulator Unreal Engine</b> <ul style="list-style-type: none"><li>Implementation of Longitudinal and Lateral control to autonomously navigate a car through a set of given way points</li></ul> <b>Visual Odometry for Autonomous Driving</b> <ul style="list-style-type: none"><li>Estimated the vehicle trajectory using feature matching among subsequent set of camera images</li></ul>	
<b>AWARDS &amp; ACHIEVEMENTS</b>	<ul style="list-style-type: none"><li><b>Fulbright International Scholar</b> (2017-2019)</li><li><b>ASME RICE Cullimore Scholar</b> (2017-2018) for Graduate Studies at Georgia Tech</li><li><b>Global Employee Recognition Awards</b> (Jun 2016 &amp; Dec 2016) for best performance at GSK</li><li>On the <b>dean honors roll</b> at GIKI (all semesters) for outstanding academic achievement</li><li>Achieved <b>first position</b> in the Technology Ventures class competition among 12 teams at Georgia Tech.</li></ul>	
<b>LEADERSHIP EXPERIENCE</b>	<b>Graduate Senator,</b> <i>Student Government Association, Georgia Tech</i> Representing over 500 student societies and over 25k students at Georgia Tech in the Graduate Student Senate <b>Director Finance,</b> <i>Pakistani Student Association</i> Leading the finance office. Managing a portfolio and funding of thousands of dollars	<b>Atlanta, GA, USA</b> Feb 2018 – Present <b>Atlanta, GA, USA</b> May 2018 - Present
<b>TEACHING</b>	<b>Graduate Teaching Assistant</b> <i>Georgia Institute of Technology</i> <ul style="list-style-type: none"><li><b>Deep Learning CS7643 (Co-taught with Facebook AI):</b> Hosting office hours and grading assignments.</li><li><b>Robotics ME 7757 (Teaching Practicum):</b> Co-teaching 3 classes, designing homework and exam.</li></ul>	<b>Atlanta, GA</b> Spring 2021
<b>SKILLS</b>	<b>Technical:</b> Deep Learning, Robotics Simulations, Machine Learning, Robot Perception & Control, Motion Planning, <b>Software and Frameworks:</b> ROS, Pytorch, Matlab, Github, Python, Linux, C++ <b>Robots:</b> Golem Krang, Turtle-bot, Fetch Robot	