Shehzaman Salim Khatib

skhatib@andrew.cmu.edu • +1 412-482-4254 • https://shehzaman.github.io

EDUCATION

- **Robotics Institute, Carnegie Mellon University** — Pittsburgh,PA
  Masters in Robotics; GPA: 4.0/4.33 — Aug 2014 - May 2016(expected)
- **Indian Institute of Technology Madras** — Chennai, India
  Bachelor of Technology in Mechanical Engineering — Aug 2009 - May 2014
  Master of Technology in Energy Technology; Cumulative GPA: 9.23/10

SKILLS

- Path planning, Computer Vision, Machine Learning
- Programming: C++, Python, ROS, MATLAB, 3D modelling (Inventor, SolidWorks)
- Embedded Systems: AVR family(AtMega16, AtMega128), Arduino, Beagle Bone Black

EXPERIENCE

- **Decentralized localization of Robot Swarms**
  Graduate Research Assistant under the guidance of Professor Katia Sycara. — *November, 2014 - Present*
  - Working on localization for multi-robot systems under uncertainty and changing topology.
- **Path planning in a Distance-Constrained Hazardous Environment**
  Course project — *August-December,2014*
  - Developed a method to optimize paths of multiple robots that are required to rendezvous after travelling a specified distance.
  - Applied algorithm on a resource-constrained planning problem for multiple robots that meet to share resources (such as energy).
- **MITACS Globalink Scholar, 2013 at University of British Columbia, Kelowna**
  Visiting Undergraduate Research Assistant at the ACIS lab working under the guidance of Professor Homayoun Najjaran. — *May-July, 2013*
  - Project 1: Ported a dynamic robot simulator for evaluating planning algorithms, from C++/ROS and Gazebo-3D simulator for use with MATLAB.
  - Project 2: Developed a low cost (∼$10) high voltage DC-DC and DC-AC converter for Digital Microfluidic Systems (also known as Lab on Chip devices).
- **Summer Internship at GE John F Welch Technology Center, Bangalore**
  Summer Intern at non-destructive testing lab, GE Global Research — *June-July, 2012*
  - Simulated ultrasonic wave propagation across different material boundaries, especially steel and water, for the purpose of studying beam deviation in non-destructive testing.
  - Developed finite element models in python using Abaqus 6.11.
- **Summer Internship at Indigo Quotient Labs, Bangalore**
  Summer Intern for a technology start-up Indigo Quotient labs, Bangalore — *June-July, 2011*
  - Designed and prototyped an accelerometer-based gesture-controlled mobile robot.

PUBLICATIONS

- Farrokhsiar, M., **Shehzaman, S.K**, and Najjaran, H, 'Robust Active SLAM: A Tube-based Approach.'
  Journal of Intelleigent and Robotic Systems
  This paper analyses the robustness of the conventional active SLAM methods and propose integration of the set-theoretic and information theoretic frameworks to increase the robustness of the information theoretic active SLAM methods. Matlab simulations and ROS/Gazebo experiments indicate the effectiveness of the proposed method. — *Submitted*
- Farrokhsiar, M., **Shehzaman, S.K**, and Najjaran, H, 'A Robust Market-based Motion Planning and Control Scheme for Multi-robot Active SLAM.'
  This paper presents an auction based multi-robot motion planning based on the tube-based nonlinear MPC for the exploration purposes. — *Draft*

SCHOLASTIC AWARDS

- Fellowship, Kishore Vaigyanik Protsahan Yojana (KVPY) 2008, awarded by Indian Institute of Science (IISc), Bangalore - 140 students were awarded this fellowship from all over India.
- Fellowship, National Talent Search Examination (NTSE) 2006, awarded by NCERT board, India.
- Among the top 300 students in India selected for Indian National Chemistry Olympiad (INChO) and Indian National Astronomy Olympiad (INAO), 2009.