Xuning Yang

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Education

2017– **Robotics Institute, Carnegie Mellon University** Ph.D. in Robotics
Advisor: Dr. Nathan Michael

2015–2017 **Robotics Institute, Carnegie Mellon University** M.S. in Robotics
Advisor: Dr. Nathan Michael, Dr. Koushil Sreenath

2010–2015 **University of Toronto** B.A.Sc. in Engineering Science with Honours
Major in Aerospace Engineering, Minor in Robotics and Mechatronics
Thesis: Control with Complex Specifications for a Flip Maneuver of a Quadrotor Helicopter
Advisor: Dr. Mireille Broucke

Experience

2017– **Resilient Intelligent Systems Lab, Robotics Institute, Carnegie Mellon University** Pittsburgh PA, USA
Graduate Research Assistant
Built, developed and maintained quadrotor systems with efficient local, reactive collision avoidance with motion primitives based teleoperation. Design, implement and tested safety critical trajectory management framework, including safe transitions. Research focuses are on behavior inference and minimal information, online, real-time intent prediction for assisted operator control of mobile robots.

2015–2017 **Resilient Intelligent Systems Lab, Robotics Institute, Carnegie Mellon University** Pittsburgh PA, USA
Graduate Research Assistant
Developed long-duration locally adaptive motion-primitives based teleoperation for ground robots and quadrotors using online regression over feature-based operator intent.

2015 **Rapyuta Robotics Ltd.** Zürich, Switzerland; Tokyo, Japan
Control Engineering Intern
Simulated, implemented and tested an aggressive quadrotor hover-to-hover flip maneuver using a parameterized open-loop trajectory, improved using iterative learning scheme for real-time flip performance.

2014 **Autonomous Systems and Biomechatronics Lab, University of Toronto** Toronto ON, Canada
Research Assistant
Implemented OctoMap for 3D mapping with Microsoft Kinect and developed constraints and parameters for classification of traversable terrains in an intelligent robot learning system for realtime terrain categorization.

2013–2014 **IBM Canada Ltd.** Markham ON, Canada
Software Developer, Release Engineering
Design, developed and tested the *Open Source Dependency Extraction* framework in Java to identify open source code and security vulnerabilities in product codebase.

Publications

A. Dhawale, **X. Yang**, N. Michael, "Reactive Collision Avoidance using Real-Time Local Gaussian Mixture Model Maps". In *2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Madrid, Spain. [Submitted]

X. Yang, A. Agrawal, K. Sreenath, N. Michael, "Online Adaptive Teleoperation via Motion Primitives for Mobile Robots". In *Special Issue on Learning for Human-Robot Collaboration, Autonomous Robots*, April 2018. [pdf]

X. Yang, K. Sreenath, N. Michael, "A Framework for Efficient Teleoperation via Online Adaptation". In *Proceedings of 2017 IEEE International Conference on Robotics and Automation (ICRA)*, Singapore. May 2017. pp. 5948–5953 [pdf]

X. Yang, K. Sreenath, N. Michael, "Online Adaptive Teleoperation via Incremental Intent Modeling". In *Proceedings of the Companion of the 2017 ACM/IEEE International Conference on Human-Robot Interaction (HRI'17)*, Vienna, Austria. Mar. 2017. pp. 329–330 [pdf]

S.C.C. Shih, I. Barbulovic-Nad, **X. Yang**, R. Fobel, and A.R. Wheeler, "Digital microfluidics with impedance sensing for integrated cell culture and analysis". In *Biosensors and Bioelectronics*. Oct. 2013, vol. 42, pp. 314–320. [pdf]

Activities

2017, 2018	Teaching Assistant, Introduction to Feedback Control Systems (16-299), CMU
2017–2018	RoboCzar (Chair), RoboOrg (Robotics Institute graduate student organization), CMU
2016–2017	Class Rep, RoboOrg, CMU
2013–2015	Executive Chair, Galbraith Society, University of Toronto

Systems Linux/Unix **Languages** C++, MATLAB, Python **Software** ROS, Git, LaTeX.