Matt Corsaro

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EDUCATION

Brown University — Providence, RI
Ph.D. in Computer Science, GPA: 4.00/4.00 Advisors: George Konidaris and Stefanie Tellex — 2017–Present

Northeastern University — Boston, MA
M.S. in Computer Science, GPA: 3.96/4.00, Advisor: Robert Platt — 2015–2017

Rensselaer Polytechnic Institute — Troy, NY
B.S. in Electrical Engineering, GPA: 3.98/4.00 — 2012–2015

PUBLICATIONS

[1] **M. Corsaro**, S. Tellex, and G. D. Konidaris, "Learning to Detect Multi-Modal Grasps for Dexterous Grasping in Dense Clutter", in *2021 (In Submission)*.

[2] B. Tang, **M. Corsaro**, G. D. Konidaris, S. Nikolaidis, and S. Tellex, "Learning Collaborative Pushing and Grasping Policies in Dense Clutter", in *Proceedings of the 2021 International Conference on Robotics and Automation*, May 2021.

[3] T. Nguyen, N. Gopalan, R. Patel, **M. Corsaro**, E. Pavlick, and S. Tellex, "Robot Object Retrieval with Contextual Natural Language Queries", in *Robotics: Science and Systems XVI*, Jul. 2020.

RESEARCH EXPERIENCE

Brown University — Providence, RI
Research Assistant @ George Konidaris's Intelligent Robot Lab — 2017–Present

- Grasp Detection for Intelligent Manipulation
- Ongoing dissertation research on robot grasping and abstraction for intelligent manipulation.
- Completed course projects involving *Action-Conditional Video Prediction using Deep Networks in Atari Games* and integrating deep learning into *Skill Discovery in Continuous Reinforcement Learning Domains using Skill Chaining*.

Northeastern University — Boston, MA
Research Assistant @ Robert Platt's The Helping Hands Lab — 2015–2017

- Grasp Pose Detection in Dense Clutter with a UR5
- Ported the system described in *High Precision Grasp Pose Detection in Dense Clutter* to a UR5 robot and helped to improve the grasp success rate.

Harvard University — Cambridge, MA
Summer Research Intern @ Robert Howe's Harvard Biorobotics Lab — Summer 2014

- Grasp Point Recognition from Geometric Cues
- Integrated a computer vision algorithm to detect and execute grasps with a real robot.

Work Experience

Locus Robotics   Wilmington, MA
Robot Software Engineering Intern   Summer 2017
- Depth Estimation from 2D Images
- Computer vision project to extract point clouds from monocular camera feed on mobile robot.

Locus Robotics   Wilmington, MA
Robot Software Engineering Intern   Summer 2016
- 3D Vision for Mobile Robots
- Integrated 3D depth sensor with mobile robot platform, improved 3D data processing pipeline.

Vecna Technologies   Cambridge, MA
Robot Software Engineering Intern   Summer 2015
- Navigation for Mobile Robots
- Worked on mobile robot navigation stack to execute predictable motion paths.

The Boeing Company   Troy, NY
Rensselaer Multidisciplinary Capstone Design Project   Spring 2015
- Robot Arms for Airplane Assembly
- Led multidisciplinary group of students in designing and simulating robotic arms for automated airplane wing maintenance and assembly.
- Held weekly conference calls with Boeing engineer, presented results to group of Boeing employees.

Skills

- **Programming:** C++, Python
- **Deep Learning:** TensorFlow
- **Robot Software:** ROS, PCL
- **Simulation:** Drake
- **Some additional experience with:** PyTorch, MuJoCo, PyBullet, MATLAB

Awards

- Andries van Dam Graduate Fellowship   2017–2018
- RPI Wynatt James William Prize   2015
- Boeing Scholarship   2015
- RPI Medal   2012

Teaching

- **Grad Teaching Assistant** at Brown University   Spring 2018
  Topics in Collaborative Robotics (CSCI 2951K)
- **Teaching Assistant** at Northeastern University   Spring 2017
  Foundations of Artificial Intelligence (CS 5100)
- **Head Teaching Assistant** at Northeastern University   Fall 2016
  Foundations of Artificial Intelligence (CS 5100)

Mentorship

- Bingjie Tang, Brown University, M.S. 2020   2018–2020
  Now Ph.D. Student at University of Southern California
  Project: Learning Combined Planar Pushing and 6 DoF Grasping Policies

- Anthony Cruz, Brown University, Sc.B. 2018   2017–2018
  Now Software Engineer at Google

- Four high school students from the MET High School   2018–2019
  Mentored four students through Brown's CSCI 1951R: *Intro to Robotics* curriculum.

Outreach & Service

- Outreach Coordinator for the Intelligent Robot Lab and Humans to Robots Lab   2018–Present
  Schedule lab tours and presentations for elementary, middle, and high school student groups, scout groups, visiting university officials, professional groups, alumni, and staff. Traveled to local schools and the Rhode Island Robot Block Party to teach the community about robotics.

- Brown University Graduate Student Council   2018–2019
  One of the computer science department's representatives to the grad student council.

Selected Coursework

Brown University	**Northeastern University**	**RPI**
CSCI 2470 Deep Learning	*CS 5335* Robotic Science and Systems	*ESCE 4480* Robotics I
CSCI 2951X Reintegrating AI	*CS 6140* Machine Learning	*ESCE 4510* Digital Control Systems
CSCI 2951F Learning and Sequential Decision Making	*CS 5100* Foundations of Artificial Intelligence	*CSCI 1200* Data Structures
	CS 7800 Advanced Algorithms	*ECSE 4790* Microprocessor Systems
	CS 7600 Intensive Computer Systems	*MATH 4100* Linear Algebra
	CS 7400 Intensive Principles of Programming Languages	