

The Human-Robot Interaction Focus Area in the Computer Science Major
Department of Computer Science
Tufts University

Last updated by Matthias Scheutz on November 6, 2018

Overview

The crux of Human-Robot Interaction (HRI) is to understand how humans can naturally and effectively interact with different types of robots in different types of tasks. The purpose of this focus area is to provide you with breadth and depth in the broad area of human-robot interaction with a strong technical foundation in computer science. This focus area applies equally well for Arts and Sciences (A&S) and School of Engineering (SoE) students.

The Computer Science Core

1. Introduction to Computer Science (COMP 11)
2. Data Structures (COMP 15)
3. Machine Structure & Assembly Language Programming (COMP 40)
4. Discrete Mathematics (COMP 61)
6. Programming Languages (COMP 105)
6. Algorithms (COMP 160)
7. Theory of Computation (COMP 170)

The HRI Core

1. Human-Robot Interaction (COMP 150-XX)
2. Robot Programming (COMP 150-XX)
3. Ethics in AI, Robotics, and HRI (COMP 150-XX)
4. The HRI Capstone

HRI Electives

Pick at least three courses from the list below:

1. Artificial Intelligence (COMP 131)
2. Machine Learning (COMP 135)
3. Autonomous Intelligent Robots (COMP 50)
4. Developmental Robotics (COMP 150-XX)
5. Human-Computer Interaction (COMP 171)
6. Deep Neural Networks (COMP 150-XX)
7. Natural Language Processing (COMP 150)
8. Reinforcement Learning (COMP 150-XX)
9. Computational Models in Cognitive Science (COMP 150-XX)
10. Computer Vision (COMP 150-XX)

Capstone

To be successful in HRI in the future (in academia and industry alike), you will need practical hands-on experience with robots and experimental evaluations of human-robot interactions in different task settings. You can fulfill the capstone de facto requirement in our HRI focus area by either doing a year long senior capstone project via COMP 97 and COMP 98 or doing a thesis in HRI via COMP 197.