

The Artificial Intelligence 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 Artificial Intelligence (AI) is to understand how machines can learn to autonomously perform different types of tasks that typically require some intelligence on the human side (e.g., object classification and identification, task scheduling and planning, game playing, decision-making, natural language understanding, etc.). The purpose of this focus area is to provide you with breadth and depth in the broad area of artificial intelligence focusing on both statistical as well as symbolic approaches 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 AI Core

1. Artificial Intelligence (COMP 131)
2. Machine Learning (COMP 135)
3. Ethics in AI, Robotics, and HRI (COMP 150-XX)

AI Electives

Pick at least three courses from the list below:

1. Deep Neural Networks (COMP 150)
2. Statistical Pattern Recognition (COMP 136)
3. Advanced Machine Learning (COMP ??)
4. Autonomous Intelligent Robots (COMP 50)
5. Natural Language Processing (COMP 150)
6. Probabilistic Robotics (COMP 150-XX)
7. Reinforcement Learning (COMP 150-XX)
8. Computational Models in Cognitive Science (COMP 150-XX)
9. Computer Vision (COMP 150-XX)
10. Bayesian Deep Learning (COMP 150-XX)

Capstone

To be successful in AI in the future (in academia and industry alike), you will need to be able to demonstrate practical hands-on experience with AI algorithms and problems. You can fulfill the capstone de facto requirement in our AI focus area by either doing a year long senior capstone project via COMP 97 and COMP 98 or doing a thesis in AI via COMP 197.