Minor in Robotics

Offered by: Sibley School of Mechanical and Aerospace Engineering, Electrical and Computer Engineering, Computer Science
Administered by: MAE undergraduate assistant, Ashley Blank, 125 Upson Hall, ab2224@cornell.edu

Eligibility: All undergraduates except those completing minors in ECE, MechE, or CS. Pre-approval of minor plan is required.

Educational Objectives:
The robotics minor covers the fundamentals of designing, building and programming robots, and in addition requires students to dive deeper in a specific area of robotics.

Requirements:
1) Six distinct courses including at least three from Group A and three from a single category within Group B, must be completed.
2) ME majors may not count MAE 3780/3783 if it is used to satisfy the ME circuits requirement

Academic Standards: A grade of C or better in each course.

Group A: Fundamentals – choose three
CS 4750/5750, ECE 4770, MAE 4760: Foundations of Robotics
MAE 4180/5180, CS 3758: Autonomous Mobile Robots
MAE 3780/3783: Mechatronics
ECE 3400: Intelligent Physical Systems
CS 4700: Foundations of Artificial Intelligence
INFO 4410/6420 / CS 4754: Human-Robot Interaction
MAE 4810/5810: Robot Perception
ECE 4960: Fast Robots

GROUP B: Specialization – choose three in one category

Intelligence
CS 4780/5780: Machine Learning for Intelligent Systems
CS 6751 / MAE 6730: Introduction to Robotic Mobile Manipulation
MAE 6770: Formal Methods for Robotics
MAE 6790: Intelligent Sensor and Planning Control
ECE 6970: Bio-Inspired Coordination of Multi-Agent Systems
CS 4700: Foundations of Artificial Intelligence
MAE 4180/5180, CS 3758: Autonomous Mobile Robots
MAE 6710: Human-Robot Interaction

Modelling, Dynamics, and Control
MAE 4730/5730: Intermediate Dynamics
MAE 4710/5710: Applied Dynamics
MAE 4780/5780: Feedback Control Systems
ECE 4960: Fast Robots
CS 6751 / MAE 6730: Introduction to Robotic Mobile Manipulation
MAE 6760: Model based estimation
MAE 6770: Formal Methods for Robotics
MAE 6780: Multivariable Control Theory
Perception
CS 4670 / 5670: Introduction to Computer Vision OR ECE 5470: Computer Vision
CS 6670: Computer Vision
MAE 4810/5810: Robot Perception
MAE 6790: Intelligent Sensor and Planning Control
MAE 4180/5180, CS 3758: Autonomous Mobile Robots
ECE 4320/MAE 4320: Integrated Micro Sensors and Actuators: Bridging the Physical and Digital Worlds
ECE 4960: Fast Robots
MAE 6760: Model based estimation

Systems and Design
MAE 3780/3783: Mechatronics
ECE 3400: Intelligent Physical Systems
ECE 4320/MAE 4320: Integrated Micro Sensors and Actuators: Bridging the Physical and Digital Worlds
ECE 4760: Designing with Microcontrollers
INFO 4410/6420 / CS 4754: Human-Robot Interaction
INFO 4320: Rapid Prototyping and Physical Computing
DEA 5210: Interaction Design Studio
INFO 4420: HCI Design Studio
ECE 4960: Fast Robots
ECE 5725: Design with Embedded Operating Systems
DEA 6210: Architectural Robotics
MAE 6710: Human-Robot Interaction