Twin Cities Campus

Robotics Minor

College of Science and Engineering - Adm

College of Science and Engineering

Link to a list of faculty for this program.

Contact Information:
Minnesota Robotics Institute, Shepherd Laboratories, 100 Union St SE, Minneapolis, MN 55455
Email: mnri@umn.edu
Website: https://cse.umn.edu/mnri

- Program Type: Graduate minor related to major
- Requirements for this program are current for Spring 2022
- Length of program in credits (Masters): 9
- This program does not require summer semesters for timely completion.

Along with the program-specific requirements listed below, please read the General Information section of the catalog website for requirements that apply to all major fields.

The Robotics minor is designed to familiarize master's students with the areas relevant to robotics, such as robot modeling and control; perception using cameras and other sensors; and cognition to reason, plan, and make decisions. Students will learn state-of-the-art methods for developing and using robots, and be exposed to cutting edge technologies and theories forming the basis for the next generation of robots and their applications in areas such as agriculture, underwater exploration, autonomous driving, and manufacturing applications.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Prerequisites for Admission

The preferred undergraduate GPA for admittance to the program is 3.00.

Special Application Requirements:
Students interested in the minor are strongly encouraged to confer with their major field advisor and director of graduate studies, and the Robotics director of graduate studies regarding feasibility and requirements.

For an online application or for more information about graduate education admissions, see the General Information section of the catalog website.

Program Requirements

Use of 4xxx courses towards program requirements is not permitted.

Courses offered on both the A-F and S/N grading basis must be taken A-F.

The minimum cumulative GPA for minor field coursework is 3.00.

Required courses (9 credits)

Cognition (3 credits)

Select 3 credits from the following in consultation with the Robotics director of graduate studies:

CSCI 5511 - Artificial Intelligence I (3.0 cr)
CSCI 5512 - Artificial Intelligence II (3.0 cr)
CSCI 5521 - Machine Learning Fundamentals (3.0 cr)
CSCI 5525 - Machine Learning: Analysis and Methods (3.0 cr)

Perception (3 credits)

Select 3 credits from the following in consultation with the Robotics director of graduate studies:

CSCI 5561 - Computer Vision (3.0 cr)
EE 5561 - Image Processing and Applications: From linear filters to artificial intelligence (3.0 cr)

Robot Modeling and Control (3 credits)

Select 3 credits from the following in consultation with the Robotics director of graduate studies:
AEM 5321 - Modern Feedback Control (3.0 cr)
CSCI 5551 - Introduction to Intelligent Robotic Systems (3.0 cr)
CSCI 5552 - Sensing and Estimation in Robotics (3.0 cr)
EE 5231 - Linear Systems and Control (3.0 cr)
ME 5286 - Robotics (4.0 cr)

Program Sub-plans

Students are required to complete one of the following sub-plans.
Students may not complete the program with more than one sub-plan.

Masters