

# The Robotics Institute

## Research Master's Program

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### Course Requirements

Must complete a minimum of 168 units; all with a grade of B- or better.

#### Core Courses

Complete one course from each of the following four areas:

Perception:	16-720 Computer Vision	16-722 Sensing and Sensors
Cognition:	15-780 Graduate Artificial Intelligence	10-701 Machine Learning.
Action:	16-741 Mechanics of Manipulation	16-711 Kinematics, Dyn. Systems and Cntrl
Math:	16-811 Math Fundamentals for Robotics	

#### Elective courses

At least 36 credits of elective courses comprised of at least 3 courses. These can be drawn from appropriate graduate courses in Robotics and in related disciplines at Carnegie Mellon. Request elective approval by e-mailing the program head and cc'ing Barbara Jean Fecich. All electives must be approved, even courses from RI.

### Research and Thesis Requirements

Approval for the public thesis talk and the written thesis document are provided by the student's committee members, via the online forms in [BlackFriday](#). All research and thesis requirements must be submitted before May 7 for spring graduation, before August 1 for summer graduation or before December 7 for fall graduation.

#### Master's Committee

The Master's student is expected to hold at least two research meetings with each member of the Committee individually, discussing his or her research directions.

Faculty members: Most students will have two faculty members: your advisor and additional faculty member from a different research group or project. Students who are co-advised will have three faculty members.

Ph.D. student: An RI PhD student who has completed his or her second year of study, or a Ph.D. student who has successfully graduated from the Robotics Research Master's program.

#### Supervised research

The faculty advisor will assign a pass / fail grade every semester for the supervised research.

A minimum of 84 units, will come from supervised research (16-997), which will be conducted in conjunction with a faculty advisor's research program, working with that faculty on one of the on-going projects of the laboratory to develop a research thesis question, conduct the research and create the material results that can give form to the Master's Thesis document.

## Public thesis talk

An oral thesis presentation, 30-45 minutes in length, in a public venue at Carnegie Mellon. The student is expected to demonstrate the ability to present technical material to a technical audience that is not presumed to have specific expertise in the research area. The Master's Committee should be in attendance, but committee members may designate proxies to evaluate the presentation. The oral presentation, must be scheduled well in advance, and occur on a weekday. Student is responsible for scheduling and advertising (one week in advance via [ri-people@cs.cmu.edu](mailto:ri-people@cs.cmu.edu)) their thesis talk.

## Master's Thesis document

This should be a document for which the student is the sole or principal author and demonstrate a style, organization and clarity that enable researchers in the field to comprehend the problem, method, and results of the research. A complete draft of the Master's Thesis document must be provided to the committee at least two weeks prior to the scheduled oral presentation to allow for committee feedback.

The thesis should, at a minimum, contain the following sections and ingredients: Title Page (with technical report number listed), Background, Research Question, Related Work, Methods, Results, and Conclusions. There is not a specific page-based minimum length. To obtain the technical report number contact: Alan Guisewite, 412-268-3818, [adg@andrew.cmu.edu](mailto:adg@andrew.cmu.edu). Once approved by the student's committee, the Thesis must be archived as a Carnegie Mellon Technical Report and uploaded to the RI website: [http://ri.cmu.edu/publication\\_submission.html?menu\\_id=382](http://ri.cmu.edu/publication_submission.html?menu_id=382).

## First Year Check-List

- Oct 30<sup>th</sup> Faculty Advisor Selection Due  
(those beginning in the spring semester must have a faculty advisor by February 15<sup>th</sup>).
- March 31<sup>st</sup> [Master's Committee Form](#) Due

## Second Year Check-List

- November Double Check Course Requirement Completion on BlackFriday (<https://gsaudit.cs.cmu.edu>).
- January Confirm graduation for May or August.
- March / April Book public thesis talk presentation room.
- March 25<sup>th</sup> Last day to register for the May Commencement Ceremony ([RI Commencement RSVP](#)) and to [verify diploma and academic information](#) via Student Information Online (SIO).  
Carnegie Mellon Commencement: <http://www.cmu.edu/commencement/>  
School of Computer Science Diploma Ceremony: <http://www.cs.cmu.edu/commencement/>
- Two Weeks Prior to Thesis Talk Thesis Submitted to Committee Members.
- One Week Prior to Thesis Talk Advertise talk to RI Community via [ri-people@cs.cmu.edu](mailto:ri-people@cs.cmu.edu) d-list.
- May 7<sup>th</sup> / August 1<sup>st</sup> / December 7<sup>th</sup>  
(spring / summer / fall) Oral Thesis Talk, Committee Approval Forms and Final Thesis Deadline

\*All committee forms and the final thesis paper MUST be submitted by May 7<sup>th</sup> in order to participate in the commencement ceremonies held in May. You will be asked to leave the ceremonies if all requirements are not met.