

CS 4610/5335 – Lecture 1

Course Overview

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Syllabus

Available on Canvas and Piazza

<https://piazza.com/northeastern/spring2022/cs46105335>

(Canvas page(s) currently under construction)

Things to do in the following week

Background questionnaire (to be posted)

Ex0 (out 1/21, due 1/28) – required but not graded

What is Robotics?

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Keywords at robotics conferences

ICRA:

<https://www.ieee-ras.org/conferences-workshops/fully-sponsored/icra/keywords>

RSS:

“RSS seeks high-quality research papers that introduce new ideas and stimulate future trends in robotics. We invite submissions in all areas of robotics, including: mechanisms and design, robot learning, control and dynamics, planning, manipulation, field robotics, human-robot interaction, perception, formal methods, multi-robot systems, healthcare and medical robotics, bioinspired robots, and mobile robotics.”

Historical robots

Unimate (1950s):

<https://www.youtube.com/watch?v=VdoISBpyCaU>

Shakey (1960s):

<https://www.youtube.com/watch?v=GmU7SimFkpU>

Read (for Ex0):

<http://ai.stanford.edu/~nilsson/OnlinePubs-Nils/PublishedPapers/mobileautomaton.pdf>

The spirit of RSS

PR1 (2007)

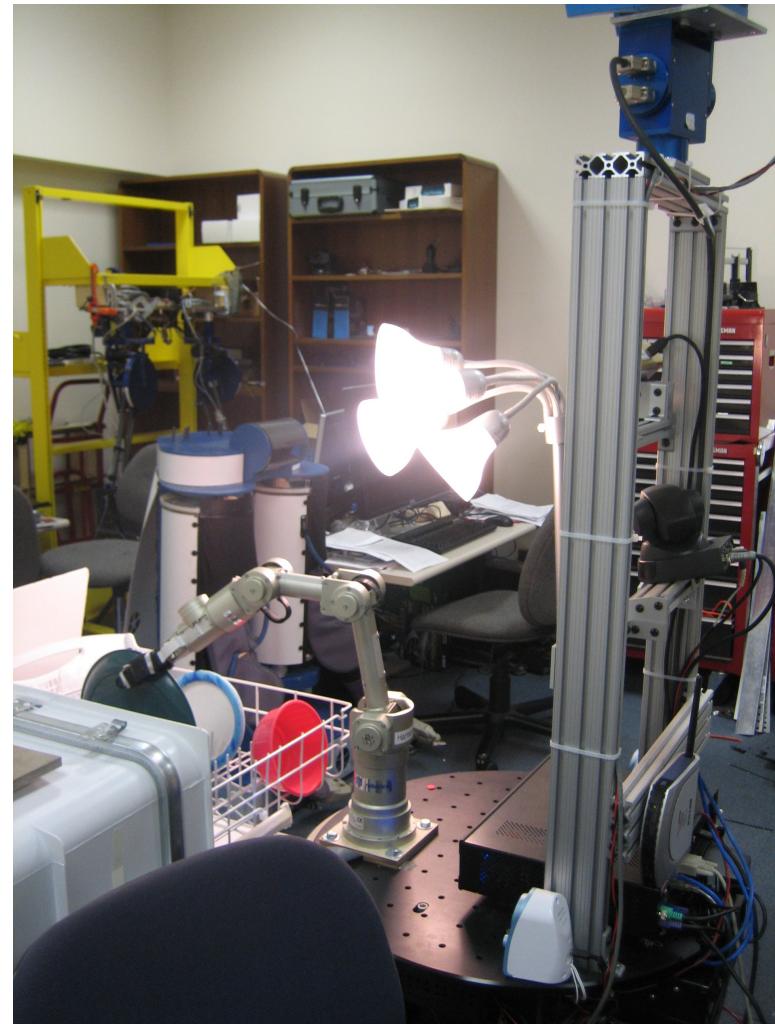
<https://www.youtube.com/watch?v=qBZPSTR96N4>



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Examples of RSS

- Motion planning on Barrett arm (2007)
Grasping on STAIR (AAAI 2008)
- Manipulation-based active search on PR2 sim (ICRA 2013)
<https://www.ccs.neu.edu/home/lsw/videos/icra2013-search.mp4>
- Combining object and metric spatial information (ICRA 2014)
<https://www.ccs.neu.edu/home/lsw/videos/icra2014-fusion.mp4>
- Object fetching via social feedback (ICRA 2017)
<https://www.youtube.com/watch?v=xuPZ9zKVIfw>
- Interpreting human-robot instructions (RSS 2017)
<https://www.youtube.com/watch?v=9bU2oE5RtvU>
- Multi-object search (ICRA 2019)
<https://www.ccs.neu.edu/home/lsw/videos/icra2019-mop.mp4>

Feedback

Piazza thread: 1/19 Lec 01 Feedback

Please post your answers to the following anonymously.

1. What did you like so far?
2. What was unclear?
3. What topics are you most excited to learn about?
4. Are we missing any topics you want to learn about?
5. Any thoughts on what robot platform/tasks you may want to work on for the project?
6. Any additional feedback / comments?

Feedback

