

# CS 309: Autonomous Robots

## FRI I

How to Read Papers

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[http://justinhart.net/teaching/2020\\_spring\\_cs309/](http://justinhart.net/teaching/2020_spring_cs309/)

# Quick Notes

- Assigning your first paper tonight
  - S. Sebo, P. Krishnamurthi, B. Scassellati. “I Don’t Believe You”: Investigating the Effects of Trust Violation and Repair. HRI 2019
  - Due Monday 11:59pm
  - Paper discussion in Tuesday’s class

# Research Papers

- Document scientific research
- Subject to peer-review prior to publication
- Do a handful of things
  - Discuss & test a hypothesis
  - Develop a new system or method
  - Survey other papers (generally only journals)
  - Discuss a theory (workshop papers & letters)

# Conference Papers

- A call for papers (CFP) is issued 6-8 months prior to the conference
  - But everyone knows when the major conferences are (they happen every year), so everyone know something about the deadlines in advance
- Papers are submitted by the deadline
- Accepted papers are presented as talks or posters
- Because computer science moves very quickly, most of the action is at conferences

# Journal Articles

- Collected continually
- Generally more prestigious than conference papers
- Publications in a top journal can be a career maker
  - Science
  - Nature
  - In Robotics
    - Journal of Field Robotics
    - International Journal of Robotics Research
    - Science: Robotics (new)
    - Journal of Human-Robot Interaction

# The Peer-Review Process

- At the top
  - Journals have an editorial board
  - Conferences have a program committee (PC)
- (Meta-) Reviewers are appointed by the editors or PC
  - Generally 3
    - More for controversial papers or important topics
  - The reviews
    - The reviewers read the paper and score it
    - They also write an assessment
  - The meta reviewer writes a meta review from the reviews

# For a Conference

- PC Meeting
- Triage
  - Papers are ranked by score
  - The basics of the paper are discussed (by the meta)
  - Top & bottom scores get a brief few words
  - Two lines are drawn
    - Above the top line, the papers are in without discussion
    - Below the bottom line, the papers are rejected without discussion
- Re-Ranking
  - Everything in the middle is debated and re-ranked
- Selection
  - Some papers are selected for oral presentations
    - Topics of major, general interest
    - Very well-done work
  - Some are selected for poster presentations
    - Now considered on-par with oral presentations, this wasn't always the case
  - Some are rejected

# For a Journal

- The editors select what is published and what is not based on the recommendations of the reviewers
  - But the reviewers have scores that say
    - Accept
    - Minor Revision
    - Major Revision
    - Reject
    - (Sometimes) Not Suitable for Publication
  - Before going to review the editor can use
    - Summary Reject
- A revision is an invitation to resubmit your work after changing it to fit the reviewer's recommendations
  - The same reviewers will often review the paper next time.
- Generally, if the experiment is good enough, the paper will get in after revision

# Two-Round Review

- Some conferences use two-round review
- The authors read the review
- They write a “rebuttal”
  - For papers that definitely will get in, this is just a thank-you note
  - For papers that definitely will be rejected, this is also a thank-you note
- The rebuttal
  - Addresses the reviewers’ concerns
  - Promises to fix them or explains why the reviewers are incorrect (politely)
- The reviewers read the rebuttal
- The reviewers change their scores
- Then it goes to the program committee

# After a Paper Acceptance

- Prepare the “camera-ready” paper
  - This is the version that will be printed
  - The other is sometimes called the “review copy”
- Typesetting
  - Modern typesetting uses LaTeX for most conferences and journals
    - The journal gives you a “template” and LaTeX makes it look correct for print
    - You do not format, as in WYSIWYG editors like Word or Google Docs
  - Some publications will have a copy-editor or typesetter
    - They will ask you to change the paper in ways that makes the print look better
    - This is much less common today, but once was standard practice
    - Generally, this is for groups that emphasize having a particularly beautiful appearance in print

# Not all papers are created equal

- At publication time
  - Journals are generally at the top
  - Conferences are second place
  - Workshops
    - Special sessions at conferences discussing a specific hot topic
  - Symposia
    - Like workshops that are not hosted at conferences
  - Workshops & Symposia emphasize good discussion
    - This means that the peer-review process may be very “light” for work that they think will be interesting to talk about.
  - Arxiv
    - Pre-print papers are hosted on Arxiv to benchmark if authors might have been the first to an idea.
      - They are not peer-reviewed
- Generally, it is acceptable to move work “up” this food chain.
  - But they often ask that you add something when you move up.

# Citations

- People “score” papers based on citations
  - And the citations of the papers that cite them
    - I10 index – How many papers citing your paper had more than 10 citations
    - h index (for an author) – Highest number of papers (h) that have been cited at least h times
- Influential papers have many citations
- Journals and conferences are ranked in part by these scores
  - This is their “selectivity”
  - The ranking is sort of informal

# Reading Research Papers

- Read critically
  - Is this outdated, possibly?
  - Can this live up to its claims?
  - What exactly was claimed?
  - Can I improve this?
  - Can I use this?
- Take inspiration for your own research
- Use in your systems
- Understand the topic better