ROB 537:
Learning-Based Control

Week 7, Lecture 1
Project Discussion

Announcements:
Draft Paper due 11/20
HW 4 Due on 11/16

HW 4:

Provide a review of two papers:

The papers and review form are on the course website.

Your review should be professional, thorough and discuss the positive and negative aspects of the paper. The “detailed comments” section is the main part of the review. You should have insightful comments supporting your conclusions based on the set of questions.
Note: These questions are guides, some will need four answers, some may only need one.
How to do a project in 10 weeks

• Four steps:
  – Learning, discussion          weeks 1-2
  – Project proposal (Topic selection) week 3
  – Paper Intro & background      week 4
  – Paper draft                   week 8
  – Final paper                   week 10

Paper: Intro & Background

• Introduction
  – What is the interesting problem: big picture?
  – What is the difficulty?
  – What is the significance of solving this problem
  – What do you intend to do?
  – What is the contribution of this paper?
  – What is coming in the next paragraphs?

• Background
  – Specifics about the problem
  – Key background needed to understand/solve the problem

  – General approaches to the problem
  – Related work addressing these problems

• References
  – Most should be here
Paper: Draft

• Abstract
  – 1 paragraph “ad” for the paper
  – Each section below should have 1-2 sentence summaries

• Introduction

• Background

• Method
  – What is your solution
  – Describe algorithm/theory

• Results
  – Describe set of experiments you will conduct
  – Give preliminary results

• References
  – Full list

Paper: Final Paper

• Abstract
  – 1 paragraph “ad” for the paper
  – Each section below should have 1-2 sentence summaries

• Introduction

• Background

• Method

• Results
  – Describe set of experiments you will conduct
  – Give detailed results
  – Provide Analysis on the results

• Discussion/conclusion
  – Key contributions of paper
  – Key insight
  – Future work

• References
Final Presentation: Structure

• What makes a good presentation:
  – As many results as you can present in 15 minutes
  – As much math as you can cram onto a page (use tiny fonts to fit more math)
  – Skip the background and jump into the code
  – You have to tell a story

What does it mean to tell a story?

  – Why are you doing this project
  – Who cares?
  – What are your goals?
  – What’s the impact of achieving your goals?
  – How did you go about achieving those goals
  – What did you achieve
  – What’s the key contribution of your work
  – What next?
To outline or not to outline

— Up to you, but:

— If presentation is less than 15 minutes, you probably don’t need it.
— If presentation is longer than 20 minutes, you do need it.

— If you have an outline, don’t do this:

Outline

• Introduction
• Background
• Method
• Results
• Conclusions
Outline: Robots for wave energy extraction

- Impact of wave energy
- Learning and coordination in multiagent systems
- Multi-robot coordination for wave energy farm
- Results: Improved efficiency in large farms
- Next steps

Final Presentation: Visuals

- Make your slide visually accessible
  - Keep them simple
  - Keep the color down
  - Don’t change fonts/colors unless there is a very good reason
THIS IS NOT A GOOD IDEA

What does it mean to tell a story?

- Why are you doing this project
- Who cares?
- What are your goals?
- What’s the impact of achieving your goals?
- How did you go about achieving those goals
- What did you achieve
- What’s the key contribution of your work
- What next?
**THIS IS A WORSE IDEA**

- What does it mean to tell a story?
  - Why are you doing this project
  - Who cares?
  - What are your goals?
  - What's the impact of achieving your goals?
  - How did you go about achieving those goals
  - What did you achieve
  - What's the key contribution of your work
  - What next?
Final Presentation: Timing

- If you have 12 minutes:
  - You should prepare a 15 minute presentation and speak as fast as you can.
  - Talk for 15 minutes because what you’re saying is very important.
  - Talk for 7 minutes and then leave because you are in a hurry.
  - Talk for 12 minutes (plus or minus 15 seconds)

Include Team Performance

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<th>TM 1</th>
<th>TM 2</th>
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- First four rows are scored out of 3 (3 is best)
- Last one is summary contribution and needs to sum to 100.
- All members need to agree to one table per team
  - This is due with every paper you submit