Introduction

CS 190
Fall 2019
Alexandra Papoutsaki

http://www.cs.pomona.edu/classes/cs190
First things first

- Name, School?

- Senior Project? Thesis? Clinic?

- What are your plans after graduation?

- Anything in particular you want to take out from CS190?
The goal of this course

• Introduce you to research in Computer Science

• Learn how to read technical material
  • Multiple research areas
  • Focus on Human-Computer Interaction and Ethics around CS

• Hone your presentation skills
  • Speaking intensive designation

• Familiarize you with scientific writing
For those doing a senior project

- Background reading for your project

- I will guide you through the process
  - That is, I will remind you of deadlines 😊

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wednesday, September 11</td>
<td>5:00 pm</td>
<td>Senior project meeting</td>
</tr>
<tr>
<td>Wednesday, September 18</td>
<td>5:00 pm</td>
<td>Ranked list of 1-3 topic/advisor pairs</td>
</tr>
<tr>
<td>Wednesday, November 20</td>
<td>5:00 pm</td>
<td>Project plan draft</td>
</tr>
<tr>
<td>Wednesday, December 11</td>
<td>5:00 pm</td>
<td>Project plan</td>
</tr>
</tbody>
</table>
The trinity of success

Colloquium

Survey paper

Paper readings and presentations
Colloquium

• Roughly every other Thursday at 4:15pm
  • https://www.pomona.edu/academics/departments/computer-science/colloquium
  • Email announcements by Vicki Hirales

• Attendance is required for 12 talks throughout the year, but highly encouraged to attend all of talks
  • Attendance is required for ALL talks if you follow old requirements
  • A good opportunity to find out more about what goes on in CS

• Shared between Pomona and HMC
  • Pay attention to the location in the announcements!
Each week

• There will be one to two papers to read, posted on the course website

• 30 minute presentation by 2-3 presenters

• Rest of meeting time dedicated on discussion
If you are NOT presenting

1. Read the papers
   • Plan on spending at least a couple of hours.
   • Should happen at least a day in advance of the class

2. Go on Piazza
   • Read the comments/questions
   • Post something thoughtful
   • Must happen by 5pm the day before class meeting

3. Show up to class
   • Pay attention (no phones/laptops)
   • Ask questions and contribute to the discussion
   • Debate the paper not the presenters
   • Give written feedback to the presenter
If you are presenting

1. Read the paper(s) again and again, starting at least a week early
2. Meet with your presentation partner/group and work on presentation
3. Make an appointment with me to meet me at least 2 days before class
   • Integrate feedback to your presentation
4. Practice your presentation
5. By 5pm the day before, post some discussion topics/questions on Piazza
6. After 5pm, review Piazza questions and comments.
   • Adjust presentation
7. On day of class, come 10 minutes early to set up
8. Within a week, I will send you feedback
General Organization

• What problem is the paper trying to solve?
• Why should we care about this problem?
• Optional: What have other people done? How does this fit in the context of previous/current work?
• Approach/algorithm
• Description/analysis
• Experimental setup
• Results
• Conclusion/future work
Don’t

• Put too much information on one slide
• Put too much text on one slide
• Use only text and bullet points
  • Yes, ignore this presentation…
• Spend more than 1 minute on a slide
• Procrastinate on preparing the presentation!
Do

• Use figures, diagrams, and other visual aids
  • From the paper or your own
  • Label them!

• Use a legible font

• Number your slides for easy reference during discussion

• Keep in mind what you liked/disliked from other presentations

• Practice, revise, and reiterate
Evaluating presentations

• We will come as a class with a rubric at the end of the class.
What is a survey paper?

• Gives an overview of a particular subfield (often fairly specific)
• Should cite and discuss the “important” papers in the field (and possibly related fields, depending on the size of the field)
• Is NOT a laundry list of papers in a field and a summary of those papers!
• Key: provide some additional insight or organization regarding the field
Survey paper steps

1a. Identify your topic
   • If you ARE doing a senior project, it will be on topic of your senior project
   • If you are NOT doing a senior project, discuss your ideas with me

1b. Find at least 10 references (i.e. papers) in your topic/subfield
   • Why isn’t this a completely separate step?
     • Part of figuring out your topic of interest will likely involve reading some papers. Often an iterative process!
Survey paper steps

2. Read the 10 papers
   • You’ll likely find more papers as you start reading these

3. Create an annotated bibliography
   • For each paper, use proper citation and write a paragraph summary

4. Outline + introduction
   • How do you organize/make sense of the papers? This is often one of the key contributions of the survey paper!

5. Write a draft of the survey paper: 6-10 pages with at least 10 references

6. Finalize the paper
## Survey paper milestones

<table>
<thead>
<tr>
<th>Date</th>
<th>Deliverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 27th</td>
<td>Latex Exercise</td>
</tr>
<tr>
<td>October 4th</td>
<td>Paper Topic and References</td>
</tr>
<tr>
<td>October 18th</td>
<td>Annotated Bibliography</td>
</tr>
<tr>
<td>November 1st</td>
<td>Survey Outline and Introduction</td>
</tr>
<tr>
<td>November 20</td>
<td>Survey Paper/Project Plan draft</td>
</tr>
<tr>
<td>December 10</td>
<td>Survey Paper/Project Plan due</td>
</tr>
</tbody>
</table>
Senior project

• Optional!

• Read through “A Guide to the senior exercise”!
  • Or at least the relevant parts
Start thinking about ideas now!

- **Eleanor Birrell**: system security, privacy.
- **Kim Bruce**: programming languages, semantics of natural languages, CS education.
- **Rett Bull**: theory of computation, applications of logic, security.
- **Yi Chen**: complex networks, algorithms, high performance computing, CS education.
- **Dave Kauchak**: natural language processing, machine learning, information retrieval and computational linguistics.
- **Joe Osborn**: game design and development, artificial intelligence, software verification, computational creativity.
- **Alexandra Papoutsaki**: human-computer interaction, computer-supported cooperated work, eye tracking, crowdsourcing.
- **Melanie Wu**: database theory and database systems, management & analysis of data.
How to narrow it down?

• Which classes have you enjoyed most? With which faculty?

• Are there topics you wanted to investigate/learn more about?

• Life after Pomona?

• What sounds interesting?
Now what?

• Track down a textbook for that topic and browse through it
• Scan over recent papers in this field
  • Some textbooks will have bibliographic information
  • Use Google to find conferences in your area
  • Google Scholar
• Talk to CS faculty to get some direction: you **must** talk to a faculty member if you hope to be able to do a senior project
• Talk to other students
• Attend the project discussion meeting on 9/11
Remember…

• 9/18: submit a ranked list of advisor/topic
  • List of three
  • Must have at least 2 unique topics
  • Must have at least 2 unique advisors

• You will be applying to do the senior project

• We are giving you 2 weeks to really focus your project ideas!

• What will make it more likely that your project proposal is accepted?
Course webpage and logistics

WHAT IF I TOLD YOU
THE ANSWER IS IN THE SYLLABUS?
Homework #1

• You will be presenting two papers throughout the semester
• Look through the papers and decide which look interesting
  • Read the abstracts and introductions
  • Glance through the rest of the paper
• I will send out an e-mail after class with a link for you to upload your preferences (due Sunday, 11:59pm)
Homework #2

• Optional!
• Start investigating your senior project topic
Let’s come up with a rubric

• Potential criteria:
  • Well prepared
  • Organization
  • Content
  • Slide quality/use of visual aids
  • Delivery
  • Discussion