Introduction

CS 190

Fall 2019
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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 ☺

Date	Time	Event
Wednesday, September 11	5:00 pm	Senior project meeting
Wednesday, September 18	5:00 pm	Ranked list of 1-3 topic/advisor pairs
Wednesday, November 20	5:00 pm	Project plan draft
Wednesday, December 11	5:00 pm	Project plan

The trinity of success

Colloquium

Survey paper

Paper readings and presentations
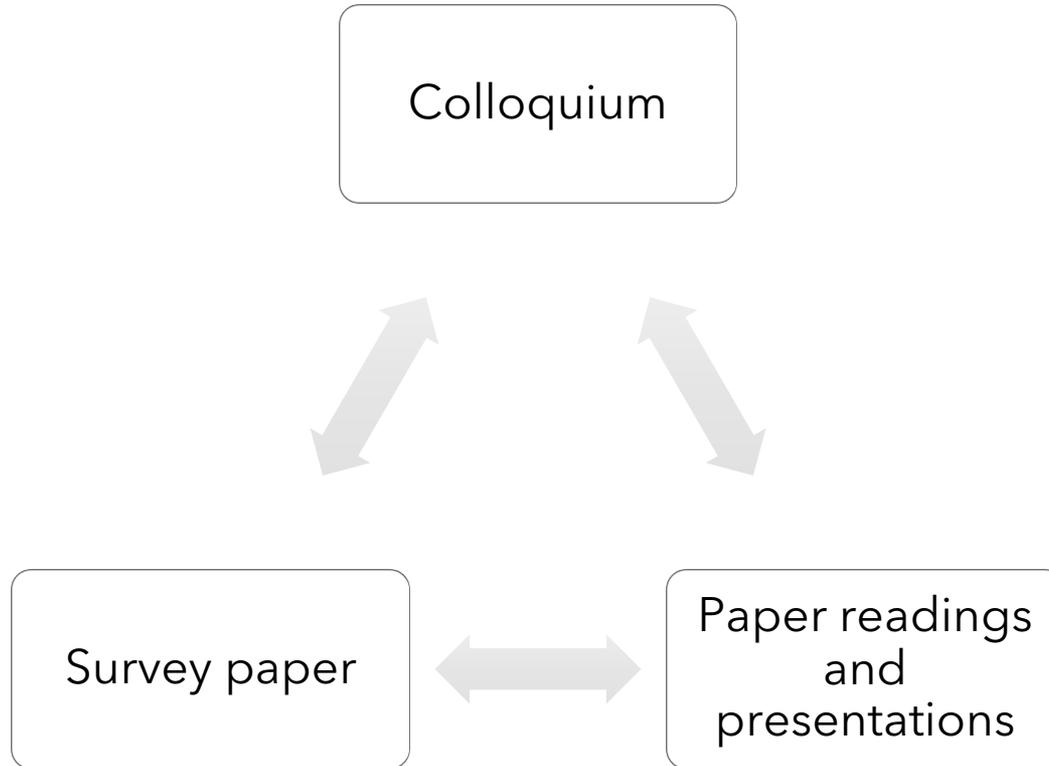
Colloquium

- 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 <u>12 talks</u> 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

Week	Day	Topic	Presenters	Homework
1)	Sept 04	Welcoming		
2)	Sept 11	How to Read A Paper and How to Write a Good Paper and 3 shell scripts to improve your writing		Senior Project meeting at 5 pm on 09/11
3)	Sept 18	As We May Think and Mother of All Demos		Senior Project

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

Date	Deliverable
September 27th	Latex Exercise
October 4th	Paper Topic and References
October 18th	Annotated Bibliography
November 1st	Survey Outline and Introduction
November 20	Survey Paper/Project Plan draft
December 10	Survey Paper/Project Plan due

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
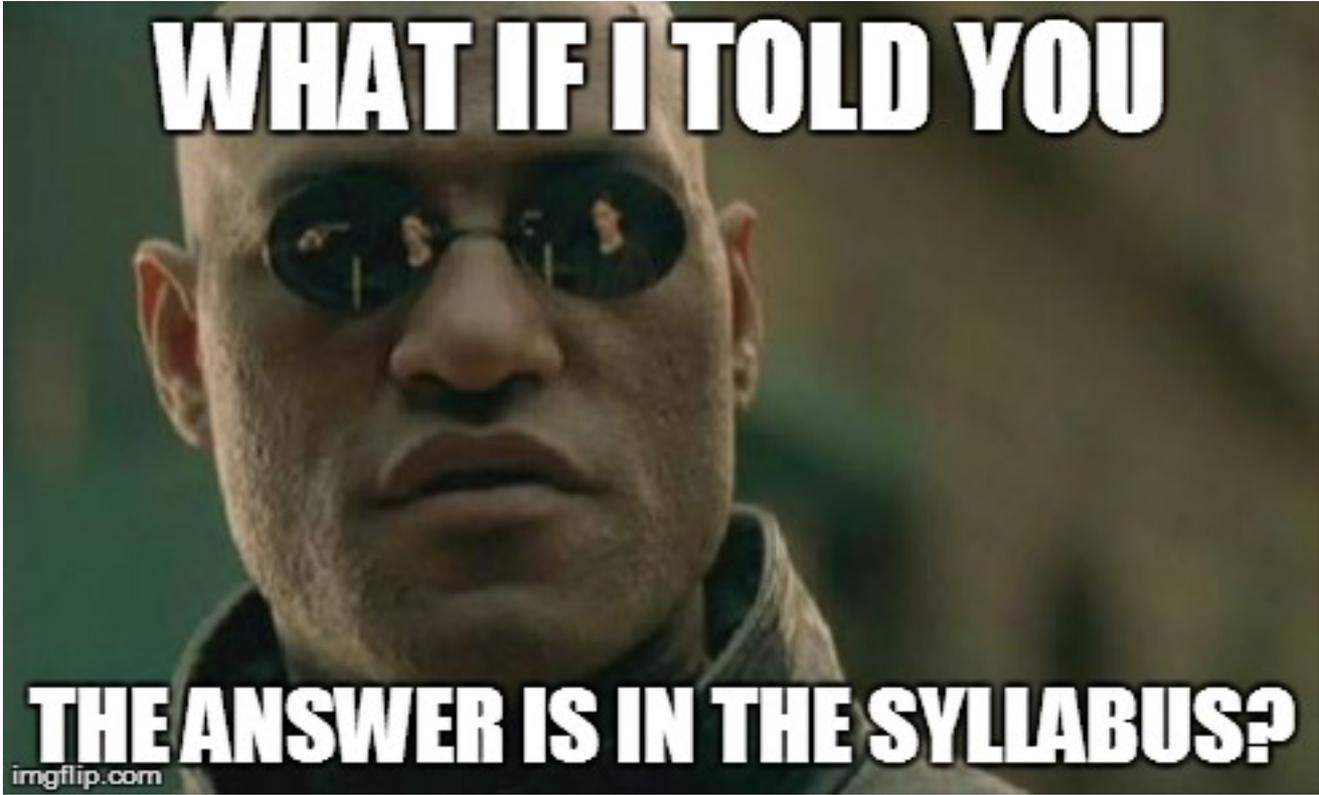
Homework #1

- 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