WELCOME TO CS190

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CS 190 – Fall 2022

1

Who are you?

Name

Senior project/thesis?

Something interesting about yourself

What you want (plan) to do when you graduate

Anything else?

2

This course…

What is the goal?

What does it involve?

3

What is the goal

Introduce you to research in computer science

Reading technical material
- Critical reading

Presentation skills

Scientific writing (in the form of a survey paper)

For those doing a senior project:
- Do the background reading for your project
- Guide you through the process (i.e. remind of of deadlines ☺)
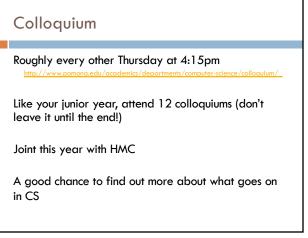
4

What does it involve

Three main components

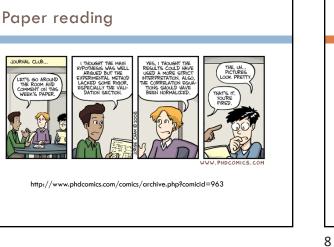- Colloquium

- Paper reading and presentations

- Survey paper

5

Colloquium

Roughly every other Thursday at 4:15pm
http://www.pomona.edu/academics/departments/computer-science/colloquium/

Like your junior year, attend 12 colloquiums (don't leave it until the end!)

Joint this year with HMC

A good chance to find out more about what goes on in CS

6

Paper reading

http://www.phdcomics.com/comics/archive.php?comicid=963

7

Each week

There will be a paper to read, posted on the course webpage

30 minute presentation by 2-3 presenters

30 minute discussion around the paper

15 minutes RTOTD

8

If you're **not** presenting

1. Read the paper
   - This should happen at least a day in advance of the class (ideally a few days before)
   - plan on a couple of hours to read the paper
2. Go to the sakai forum for the paper
   - Read the comments/questions
   - Post something thoughtful
   - Must happen by 5pm the day before the presentation
3. Show up to class
   - Pay attention (stay off your phone/laptop)
   - Ask questions and contribute to the discussion

If you are presenting

1. Read through the paper (start early!)
2. Read through the paper again
3. Discuss the paper with your presentation partner
4. *Optional*: Setup an appointment to talk to me
   - Don't wait until the last minute to do this!
5. Put together your presentation
6. Practice your presentation
7. By 5pm the day before: Post some discussion topics/questions on sakai
8. After 5pm the day before: Review the sakai discussion board and adjust presentation accordingly
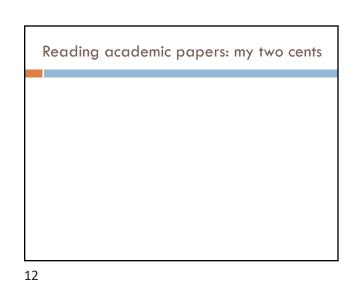9. After the presentation, meet with me to get feedback

Homework #1

You will be presenting **two** papers throughout the semester

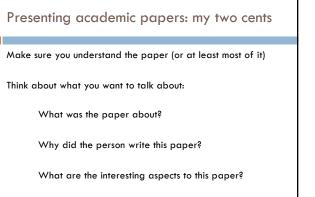Look through the papers and decide which look interesting
   - Read the abstracts and introductions
   - Glance through the rest of the paper

I will send out an e-mail after class with a link for you to upload your preferences (due Thursday, 11:59pm)

Reading academic papers: my two cents

Reading academic papers

How to Read a CS Research Paper? Philip Fong

- http://www2.cs.uregina.ca/~pwlfong/CS499/reading-paper.pdf

Homework #2: Read this ☺

13

Presentations

What makes a good presentation?

What makes a bad presentation?

14

Presenting academic papers: my two cents

Make sure you understand the paper (or at least most of it)

Think about what you want to talk about:

What was the paper about?

Why did the person write this paper?

What are the interesting aspects to this paper?

What (important) parts will people be confused about?

15

Dos and Don'ts

Don't:

- Put too much information on one slide
- Put too much text on one slide
- Only use text and bullet points (ignore this presentation ☺)
- Procrastinate on preparing the presentation!

16

Dos and Don'ts

Do

- Use figures, diagrams and other visual aids
- Plan on no more than 1 slide per minute
- Use large fonts
- Think about what things you've liked/disliked in other presentations
- Make sure you annotate your figures, equations, etc.
- Practice, revise and reiterate

17

Evaluating presentations

Well prepared

Organization

Content

Slide quality/use of visual aids

Discussion

18

Evaluating presentations

https://assessment.wisc.edu/wp-content/uploads/sites/92/2017/02/OralCommunication.pdf

19

Survey paper basics

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

20

Survey paper steps

1. Identify the topic

If you are NOT doing a senior project, I strongly recommend it be something you're excited about learning more about

If you ARE doing a senior project, it will be on the topic of your senior project

21

Survey paper steps

1a. Identify the topic
1b. Find at least 10 references (i.e. papers) that are 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!

22

Survey paper steps

2. Read the 10 papers

You'll likely find more papers as you start to read these

3. Create an annotated bibliography

For each paper:
- proper citation
- paragraph summary

all formatted in a pretty way ☺

23

Survey paper steps

4. Outline + introduction
How do you organize/make sense of the papers?
This if 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

24

Survey paper: more details

Many of the papers we will read/discuss will have an ethical component

Your paper must:

1. Be on an ethics-related topic or
2. (more likely) include a section discussion ethical considerations/implications of the topic area

25

Senior project

Optional! ☺

What is it? What does it involve?

Read "A Guide to the Senior Exercise"! (well, at least the introductory material)

26

Start thinking about ideas now!

Eleanor Birrell: *system security, privacy*

Yi Chen: *complex networks, algorithm design & analysis, CS education.*

Tony Clark: *autonomous systems, computer vision, evolutionary robotics.*

Dave Kauchak: *natural language processing, ML, computational linguistics*

Tom Yeh: *computer architecture, ML, parallel computing, computer arithmetic.*

27

How to narrow it down to a field

Which classes have you enjoyed most?

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

Life after Pomona?

What sounds interesting?

28

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
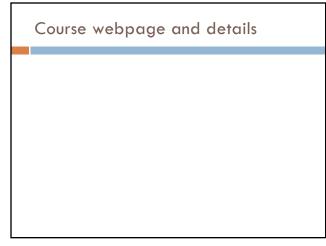- Use Google to find conferences
- Google scholar

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
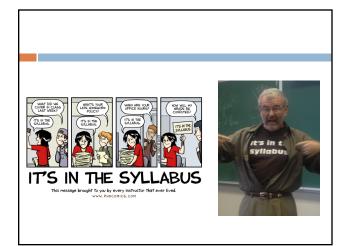
Talk to other students

29

Homework #3

Optional: Start figuring out your topic!

30

Course webpage and details

31

32

Homework?

#1 Submit your paper preferences by Thursday at 11:59pm

#2 Read course resources

#3 (Optional) Start investigating your senior project topic

#4 Read through all of the material on the course webpage

#5 Read the paper for next week!

33