Welcome to CS190

David Kuchak
CS 190-Fall 2023

Who are you?

- Name
- Something (un)interesting about yourself
- What you want (plan) to do when you graduate
- Anything else?

This course...

- What is the goal?
- What does it involve?

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 all deadlines 😊)
What does it involve

Three main components
- Colloquium (which you've already been doing!)
- Paper reading and presentations
- Survey paper

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 with HMC
A good chance to find out more about what goes on in CS
We’ll also be searching for another CS faculty member, so there will be job talks later in the semester as well

Paper reading


Each week

There will be a few papers to read, posted in the “Resources” tab for sakai

20-30 minute presentation by 2-3 presenters
30 minute discussion around the paper
15 minutes RTOTD
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 slack channel by 5pm the day before the presentation
   - Read the comments/questions
   - Post something thoughtful
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 the presentation: Post some discussion topics/questions on the slack channel
8. After 5pm the day before: Review the slack discussion 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 Wednesday, 11:59pm (Friday for the Thursday section)

Reading academic papers: my two cents
Reading academic papers

Sakai Week 1 Resources:
- How to Read a CS Research Paper – Fong
- How to Read a Paper – Keshav

Homework #2: Read these ☞

Presentations

What makes a good presentation?
What makes a bad presentation?

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?

Dos and Don’ts

Don’ts:
- 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!
- Don’t present each paper separately
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
- Put together a cohesive presentation that covers all of the papers

Evaluating presentations

Well prepared
Organization
Content
Slide quality/use of visual aids
Discussion

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

1. Identify the topic

If you are NOT doing a senior project, I strongly recommend a topic that you’re excited about learning more about.

If you ARE doing a senior project, the topic of your paper will be the topic of your senior project.

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!

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 😊

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: 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 discussing ethical considerations/implications of the topic area

Senior project

Optional 🤓

What is it? What does it involve?

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

https://cs.pomona.edu/classes/cs190/senior_projects.html

Start thinking about ideas now!

Eleanor Birrell: system security, privacy
Yi Chen: complex networks, algorithm design & analysis, CS education.
Dave Kauchak: natural language processing, text simplification, machine learning
Joe Osborn: game design and development, AI, software verification, computational creativity
Alexandra Papoutsaki: human-computer interaction, computer supported cooperative work, eye tracking, crowdsourcing

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?
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

Homework #3

Optional: Start figuring out your topic!
Homework?

#1 Submit your paper preferences by Wednesday 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!