# CS 309: Autonomous Intelligent Robotics
# FRI I

## Lecture 24:
## Final Presentations

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http://justinhart.net/teaching/2019_spring_cs309/

# How to do a Scientific Presentation

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# Outline

- Introduce the problem
- Give background if necessary
- Describe your approach to solving the problem
- Tell us how you evaluate your solution
- Describe your results
- Conclude

- In real talks, outlines are generally only for longer talks. So don’t use one for your final presentation.

# Blech

- Full-screen images work for keynotes and TED talks
  - In the case of a keynote, people already know what you’re talking about.
  - In the case of a TED talk, they don’t know enough about your subject area for you to speak technically to them.
- If you use a full-screen image, it really needs to add something to your talk. This is just a picture of a puppy.

# Introduction

- The problem is that I keep seeing student talks where the students don’t know how to give talks.

- Causes:
  - Nobody has asked them to give a talk before.
  - They did a couple of talks in history class in high school, but the teacher didn’t go through what a talk looks like.
  - They’ve seen TED talks and Kickstarter pitches and that’s about it.
  - This is fading (thankfully), but culture has emphasized quirkiness over quality and utility.

# The Problem

- The real problem that I have is that these talks give me a headache.
- Worse, I have nightmares about my students going on to give future bad talks.

# Background

- Other professors have taken the following approaches.
  - Ignore the problem. It’s your student’s problem, not yours. You only need to devote about 2 hours a semester to watching these talks.
  - Blame their other instructors. They’re the ones who left your students unprepared.

# Background

- Other advice.
  - Link a YouTube video.
    - This approach is lacking.
      - Ethan & Hila are not scientists.
      - Captain Disillusion wears Halloween makeup.
  - Direct students to a talk that you really like.
    - That talk was given by a senior scientist who breaks all of the rules of giving a talk.

# Background

- But there have been good approaches.
  - For instance, you can demonstrate what a good presentation looks like to your students.

# Approach

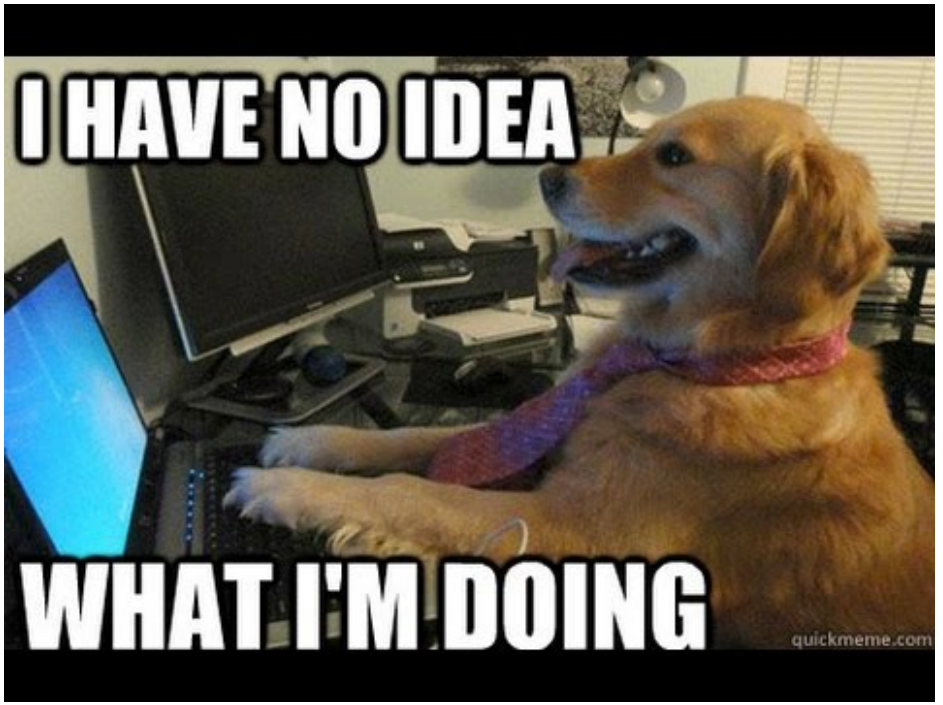
- I like to outline white slides with bullets and just the bare minimum graphics to make my point.

# Approach

- But many people hate this and insist on using images.
- If you include an image (and you probably should), make sure that it is relevant to what you are talking about.

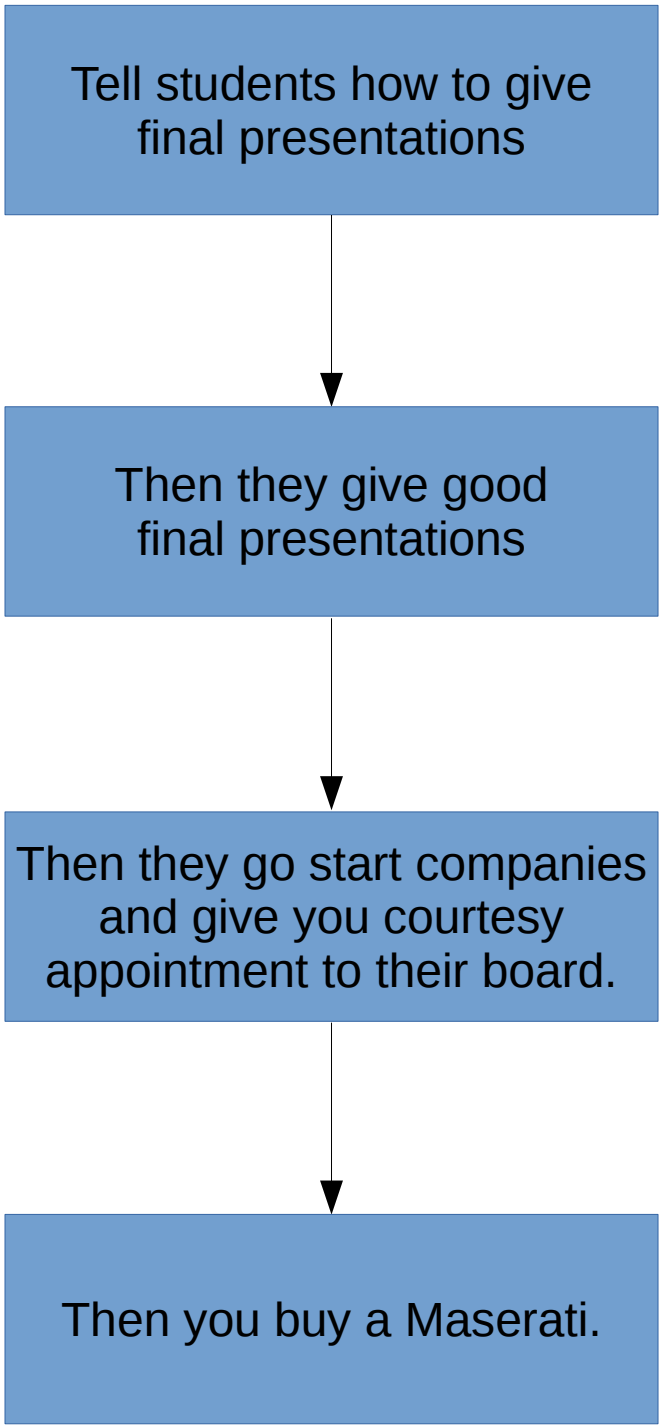
# Approach

- Regardless, the point of this section is that you give a detailed description of how you are solving your problem.



# Approach

- This is where you put formulas, descriptions of algorithms, and designs.
- Your tests go in the NEXT section. Not this one.



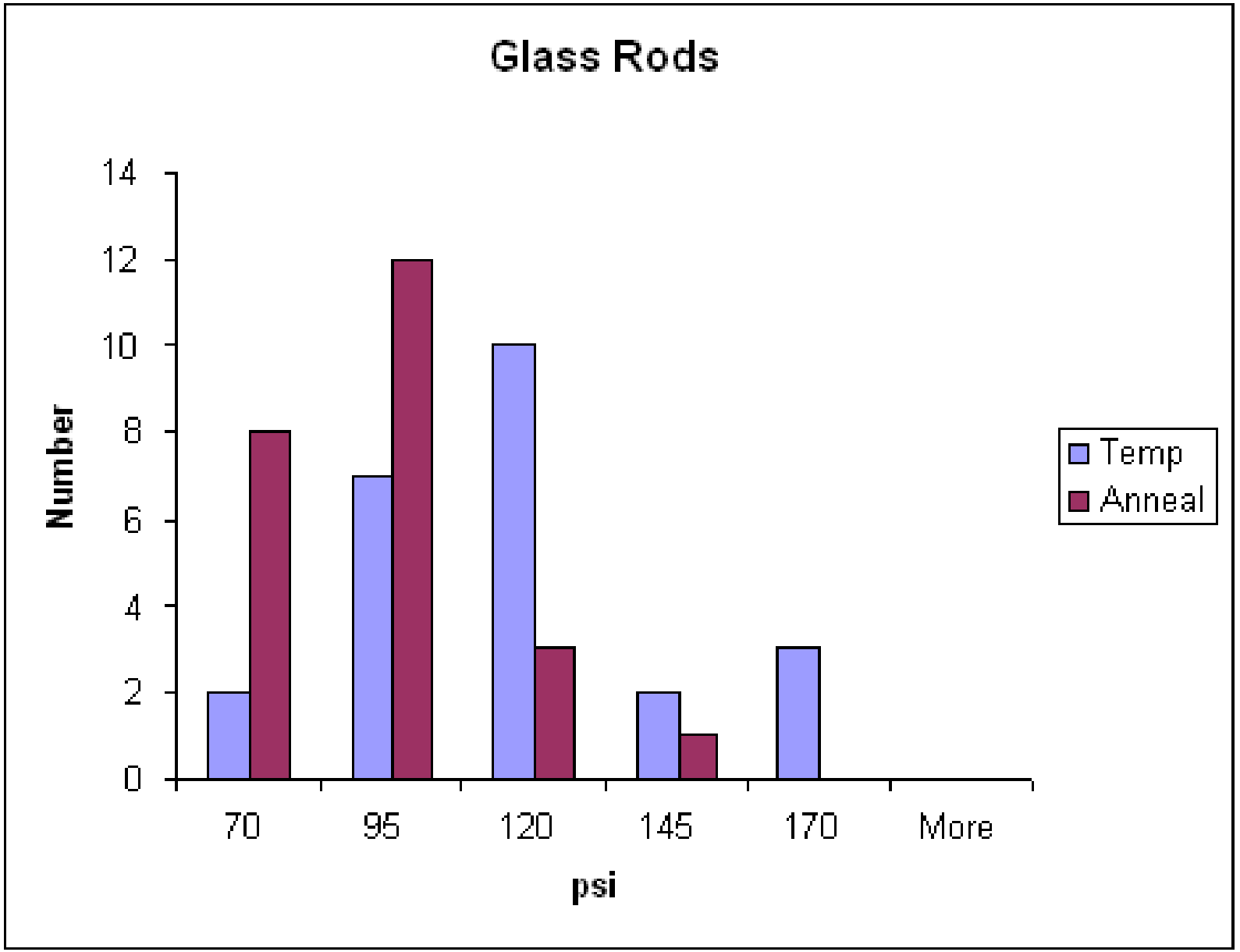
# Evaluation

- We recruited 40 participants from the UT population
  - 20 male/20 female
- We obtained informed consent
- Participants were asked to interact with our robot teaching it to dance for 15 minutes
- Afterwards they responded to a brief post-interaction survey.

# Evaluation

- Generally you show an image of your interaction and evaluation here.
- You also describe what they’re doing on this slide.

# Results


Glass Rods
Number
14
12
10
8
6
4
2
0
70
95
120
145
170
More
psi
Temp
Anneal

# Results

- “Results” is a lousy name for a slide with a chart on it.
  - Either just make the entire slide the chart
  - Or give the title of what the chart is about.
  - The entire slide being the chart works better.
- Always label your axes.
- Always include a legend.
- Always include error bars if you can compute them.
  - ..meaningfully.
  - If your error bars are so wide as to be meaningless, exclude them.

# Results

- You also *interpret* your results.
- It is YOUR job to tell the audience what your results mean.
  - **BUT THEY WILL EVALUATE WHETHER WHAT YOU ARE SAYING IS VALID.**
  - So, you present **and** interpret the data.
    - But they will critique it.

# Conclusion

- Recap your
  - Problem
  - Approach
  - Experiment
  - Results
- Do it briefly, 1-2 slides

# Conclusion

- Your whole talk should take 15 minutes
- With an additional 5 minutes for questions
- That’s 2 minutes per sub-section. You can give us that much.
- Rehearse your talk 3x before giving it, exactly as you give it.
  - Otherwise, you will sound bad.
  - I rehearse my talks far more than this if they are for a big audience.

# Conclusion

- This is a life skill
  - A good job could land you a job, or introduce you to your hero.
  - A bad talk will be forgotten.
    - If you’ve sunk 7 years into a dissertation, you’d rather people remember the disaster of your defense than forget it entirely.

# Conclusion

- My **best** talk got me
  - My job here
  - Introductions to several AAAI presidents.
  - Featured in so many documentaries and newspaper articles that I stopped counting
  - Featured on the front page of my grad school's website
- I'm not kidding. Go to justinhart.net and some of it is linked from the front page!

# Conclusion

- The science is important, but how you present yourself is just as, if not more important.
- When I slump and call myself a failure, that is reflected back at me.
- When I hold myself up straight and project pride, people give that back to me too.

# Conclusion

- The real difference is organization and preparation.

- Consider notable scientists and speakers and how they conduct themselves.
  - Many scientists know the outlines of their talks before they do the research.
  - Ernest Hemmingway’s life was a mess, but his writing was thoroughly edited and it paid off.

# Tips

- Make your slides so that the viewer can catch up if they nodded off during your talk.
  - Many of you at least checked Facebook during this talk.
- The people watching your talk are the ones you want to impress.
- Your work should stand on its own. If you constantly pay credit to how smart you are, they'll remember that you're full of yourself, not your work.

# Tips

- A good talk is about your final product. It’s not a recap of what you did.
  - We wrote a program in python, but then it didn’t work, so we wrote another one in C++, and got help from the TA...
  - Would you want to listen to that talk?
- Estimate 2 minutes per slide, minus your title slide.
- I’ve said it before, rehearse your talk, and if something doesn’t work, change it.