

# CS 309: Autonomous Intelligent Robotics FRI I

## Lecture 24: Final Presentations

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[http://justinhart.net/teaching/2018\\_spring\\_cs309/](http://justinhart.net/teaching/2018_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.

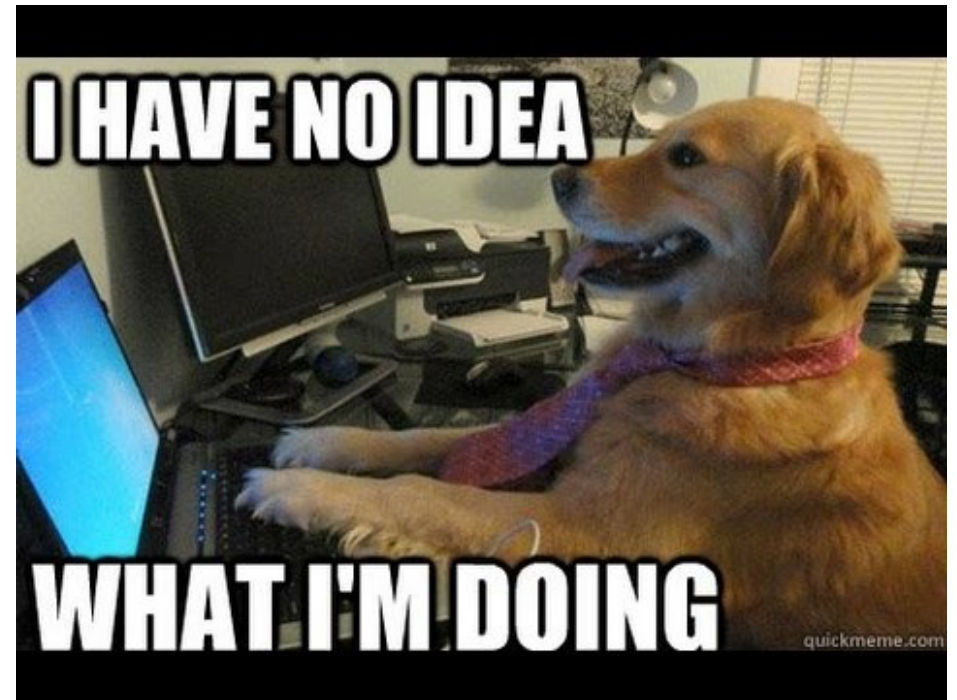
# Approach

- 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.

Tell students how to give final presentations

Then they give good final presentations

Then they go start companies and give you courtesy appointment to their board.

Then you buy a Maserati.

# 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.

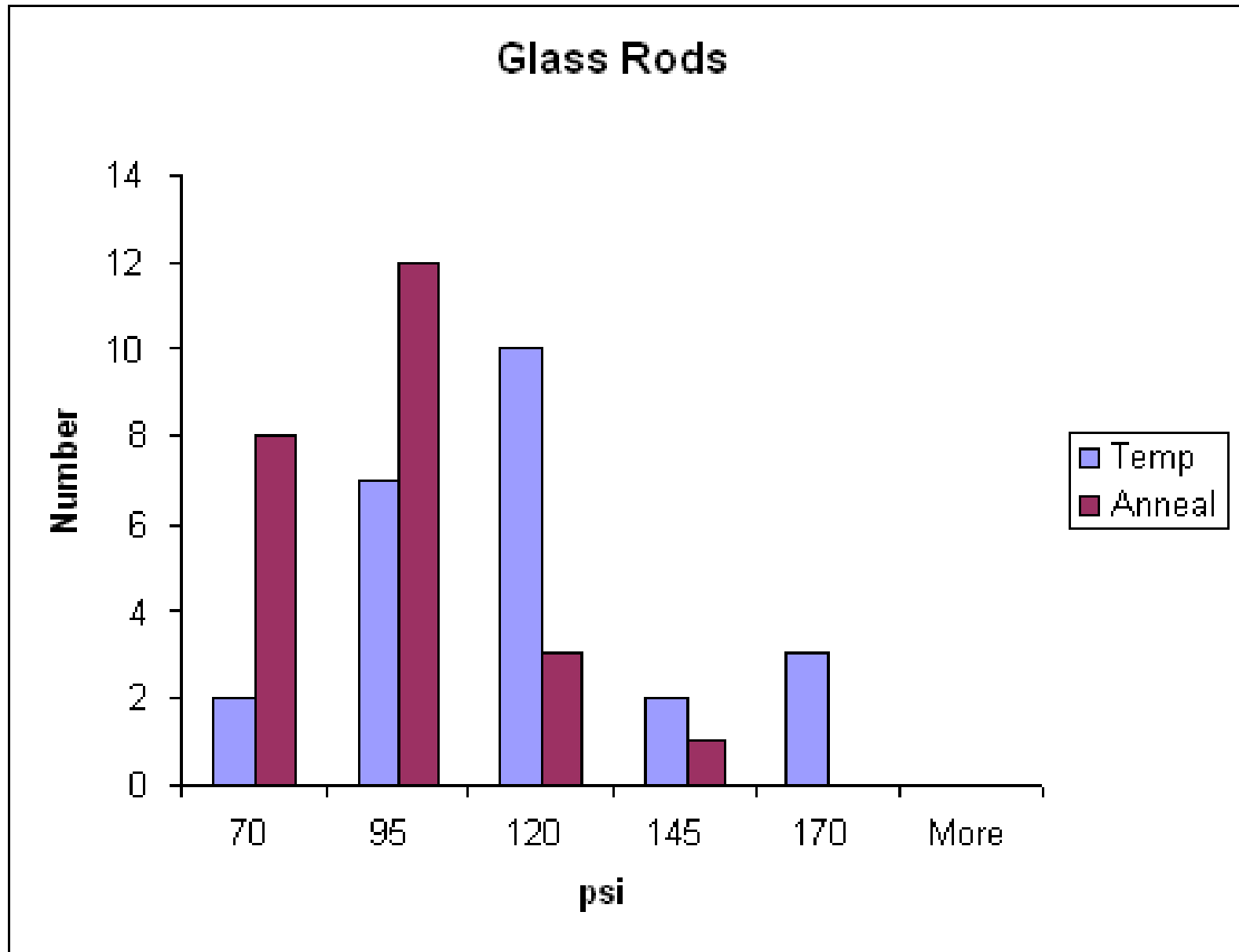
# Evaluation

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





# Results



# 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](http://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.
  - Chad Jenkins (one of my committee members) knew the outline of his TED talk before he did 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.