Why reconsider academia?

- Hard to get tenure
- Has gone from: When, where → if
- Doctors vs Rock stars
- 1877
The open idea marketplace

- Academia is open:
  - Open marketplaces: great for consumers!
  - Not so good for producers
  - Increased competition

- Industry is closed:
  - Companies do not share (all) ideas
  - Duplication of concepts and work common
Comparison

- Academia
  - Contributing to cutting edge
  - Work evaluated on whether interesting
  - Must be novel!
  - Compete as individual

- Industry
  - Usually using cutting edge at best
  - Work evaluated on whether useful
  - Need not be novel!
  - Compete as company
Industry: Some Options

- Academic
- Physics related
  - Physics PhD: Start!
  - Boom
  - Semiconductors
- Physics unrelated
  - Tech
  - Finance
Where do I work?

- Tower Research Capital, LLC
- High frequency trading company
- Tribeca, New York City
A day in the life

● Protoyping
  - Read cutting edge ML papers
  - Write code in R (like Matlab)
  - Figure out what we want

● Development
  - Write what we want in C++
  - Good software engineering practices
  - Unit testing, code review, etc
Why it's awesome

- Interesting work
- Good people
- Sense of accomplishment
- $ (competitive!)
- 5 weeks off a year
- Free food
- Parties
Tech Jobs

- The tech sector is big
- It's not (just) websites and sending spam email
- Analyzing and summarizing data, making predictions
- Examples:
  - Review summaries (Amazon, TripAdvisor)
  - Predictions (Google+, Netflix)
- Buzzwords:
  machine learning, data science, big data
How to get

- Two steps to these (and most) jobs:
  - Get the interview
  - Nail the interview

- Get the interview:
  - Sometimes a physics PhD is enough, especially if you have a connection (network!)
  - Programming or data analysis related on resume

- Nail it:
  - Be smart
  - Practice
How to prepare

- Learn how to code (properly!)
  - Especially C++ (Accelerated C++)
- Learn some probability and stats
  - Our departments are not on speaking terms
- Learn some algorithms
  - Highly recommend Coursera, Roughgarden
- Learn machine learning
  - Great class here by Dan Roth
Enjoy the non-physics!

- Famous quote about radios and chemistry sets
- Most people I know studied physics because the problems were neat
- Didn't even realize there were neat problems in other fields until much later
- Preparing will help you decide: do I want to do this stuff?
Help you make the big choice

- It's hard
- Going back is difficult
- Do your very best to see what seems more appealing
- Make the choice, don't let it happen to you!
How I feel about my choice

- How I felt in grad school
- How I feel at work
- A personal story
In conclusion

- Physics: the art of approximating → discarding irrelevant information
- Please discard whatever parts of this talk don't apply to you, or resonate with you
- I hope you discarded < 1
- Thanks!