

Academia and Industry: One Perspective

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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

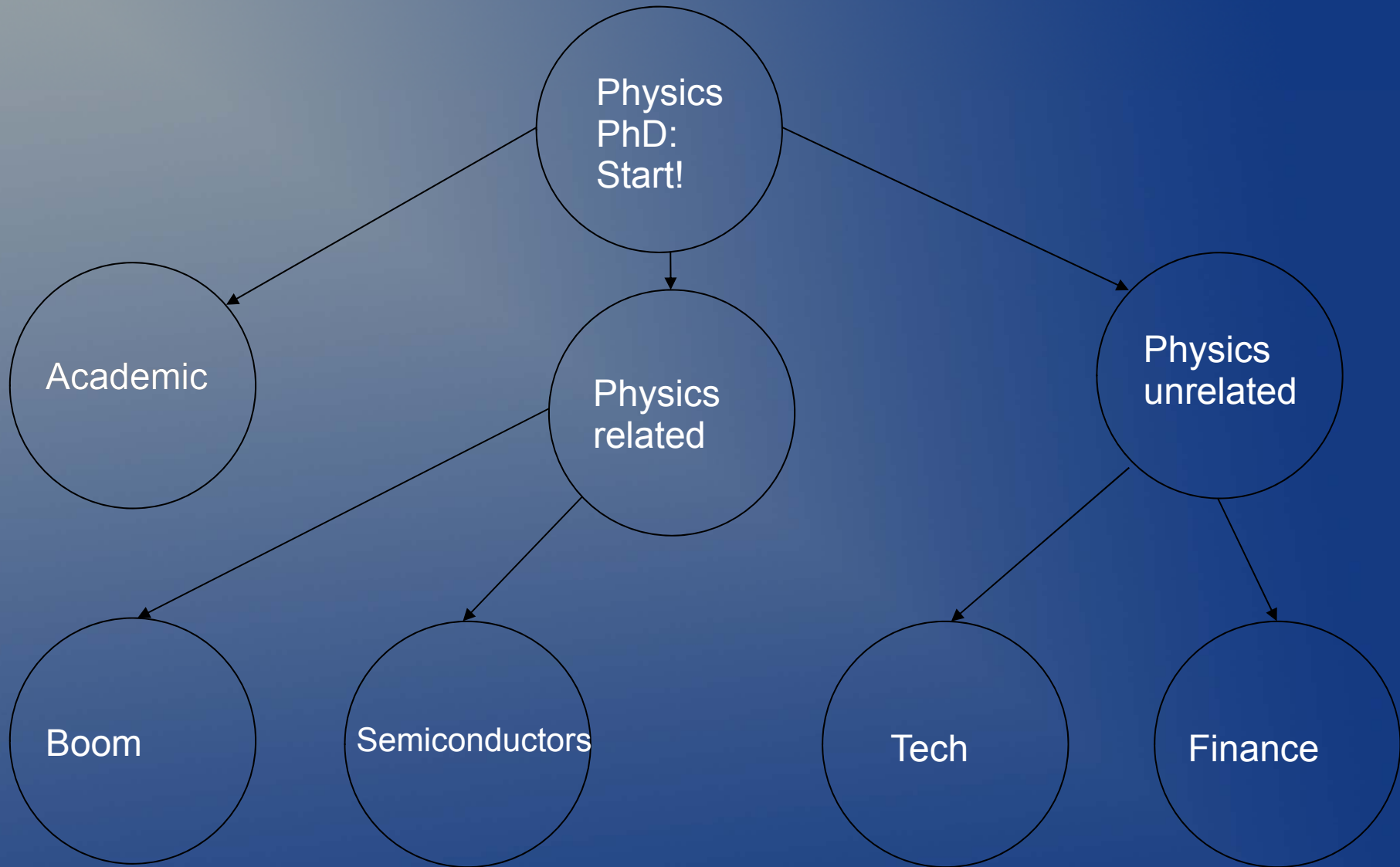


Comparison

- 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

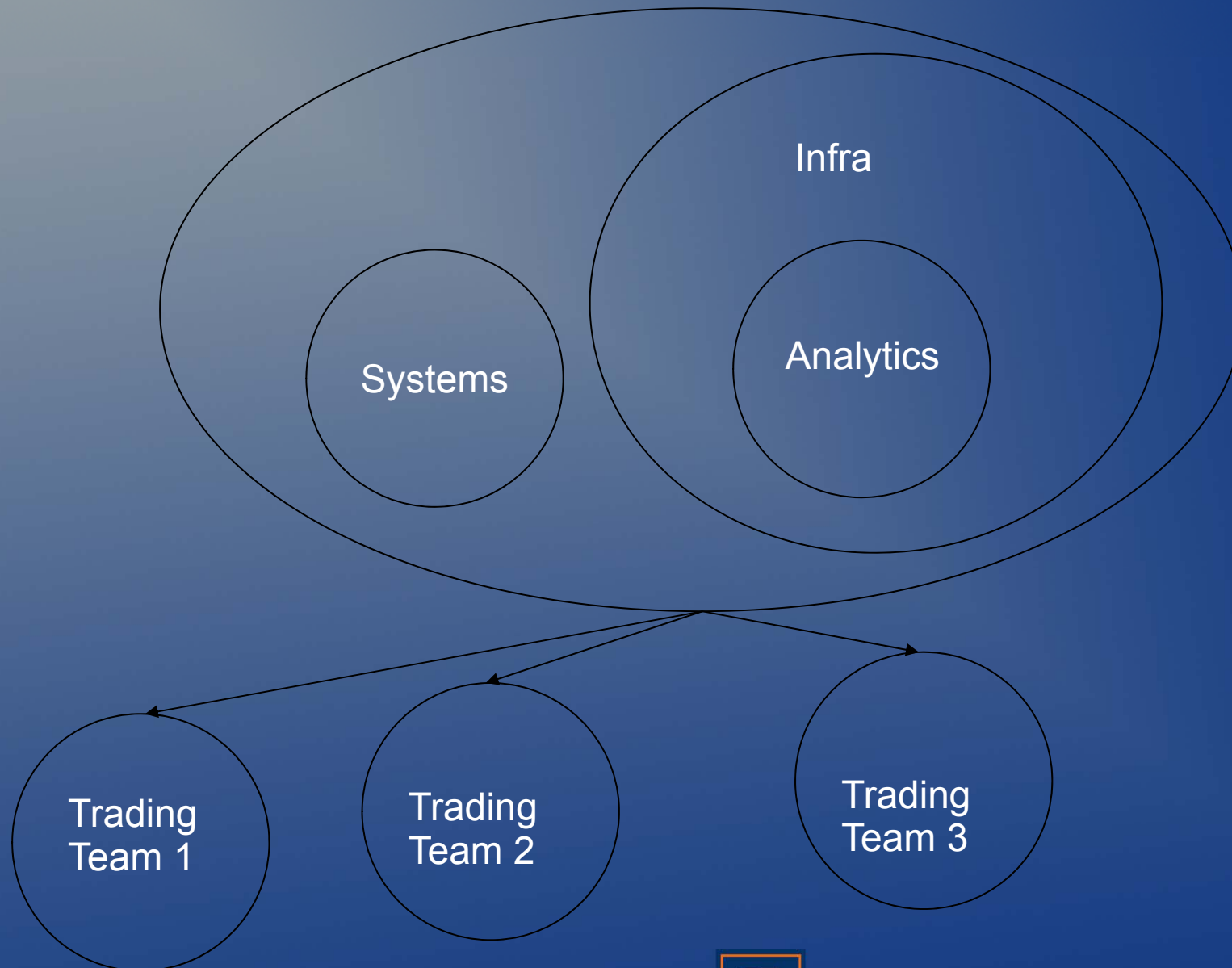


Where do I work?

- Tower Research Capital, LLC
- High frequency trading company
- Tribeca, New York City



My Team



A day in the life

- Prototyping
 - 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!

