

FINDING A RESEARCH TOPIC

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Some slides borrowed from



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Some Personal Stories

- My own: I found my thesis topic in a linguistics class when I was planning to get an MS in DB
- My students':
 - Student A: spent 2 years designing and collecting a corpus to work on one topic but found it also supported 2 other exciting topics which he put together for his thesis
 - Student B: Came from working on a topic in a major research lab...and after 4 years ended up with a new spin on the same topic
 - Student C: Spent over a year working on a topic with no results but finally got some great ones
 - Student D: Wanted to work on a topic I thought had been done to death... and came up with a new approach that beat all previous results

What Interests You?

- When you attend a talk about X
 - Do you start looking at your phone?
 - Do you think “wow, I could do that better?”
- What if you can't find anything?
 - Take a course, go to more talks, talk with your advisor and your friends
- What if you are excited about everything?
 - Your PhD is not the end ...

Think “Out of the Box”

- Great things are not incremental advances
- Examples:
 - Our field thought ***X*** but in fact ***Y*** is true
 - No one thought we could do ***X*** ***but in fact we can***
 - No one thought of doing ***X*** but here are ***reasons why it is crucial***



7 Ways to Find a Good Research Topic

Flash of Brilliance

- You wake up in the middle of the night with a wonderful idea or a new approach to solve an open problem
- Warnings:
 - It may not seem so wonderful in the morning
 - Even if it does, you may not be able to convince others

The Apprentice

- Your advisor has a list of topics/funded projects that need to be worked on
- A fairly common, easy method
- Warnings:
 - Several people may be working on the project: you have to find your own angle
 - Don't work long on something that isn't really exciting

The Extended Course Project

- You do a project in a course that turns out to be great – you want to do much more
- Another pretty good method
- Warnings:
 - Check with your advisor
 - The project may not be extensible to a PhD thesis

A Talk Inspires You

- You hear a talk in your area and think “I could do that better!” or “Why didn’t they think of X?”
- You start a discussion with the speaker...
- Warnings:
 - Your idea may have already been done
 - Your idea may not work

Data Needs Answers

- You participate in a data collection/analysis effort with another student or in industry
- You become fascinated with the potential to answer questions no one is asking
- Warning:
 - If industry, make sure you can access the data and publish
 - There may be a question of who gets to answer those questions

The Stapler

- You work on multiple topics and publish papers that are good and interesting to you
- Can you somehow put it all together into a dissertation?
- Warning:
 - It could be impossible to find a common theme that makes sense

The Interdisciplinary

- You learn about a problem in another field that you think you can help with (e.g. history and computer science)
- Warning:
 - You will need real collaboration with someone in the other field
 - You'll need to make the case that this really is a contribution to both fields (especially to your own)

Useful Things to Consider

- Is your topic doable?
 - Do you have the tools? the data? the skills?
 - If not, can you get them?
- Do you have a story to tell?
 - Why my topic is new
 - Why my topic is scientifically exciting
 - Why solving my topic will help the world

Once You Find a Topic

- When you tell your story
 - Does your advisor like it?
 - Do your friends think it's cool?
- What if no one likes it?
 - Maybe you're wrong: Consider it
 - If you still think you are right, try to convince your advisor
 - Personal story: Advisors can be wrong but you need to gain their support or find another

Now for the practical side

- Is it doable in the amount of time (5-7 years total for the PhD) you have?
- Is it fundable?
- Is it something you can get a job you like with?

Take-Aways

- Find an **advisor** you like and trust: they will be your mentor and champion for your career
- **Don't worry** if you don't have a thesis topic for a year or two: explore but with a purpose: what do **you** want to do
- **Talk to lots of people** (students and faculty) about ideas you're considering – and listen
- **Take interesting courses** in areas you are really excited about to find out what's done and what's not done yet

A Great Article for Every Grad Student (and Advisor)

➤ “
[How to Succeed in Graduate School: A Guide for Students and Advisors](#),” ACM Digital Library

Resources

CRA-W Career Mentoring Workshops:

- <http://www.cra-w.org/ArticleDetails/tabid/77/ArticleID/50/Career-Mentoring-Workshop-CMW.aspx>

On Academic Life:

- <http://blogs.scientificamerican.com/guest-blog/2013/07/21/the-awesomest-7-year-postdoc-or-how-i-learned-to-stop-worrying-and-love-the-tenure-track-faculty-life/>
- <http://dynamicceology.wordpress.com/2014/02/04/you-do-not-need-to-work-80-hours-a-week-to-succeed-in-academia/>

On Post-Docs:

- http://cra.org/resources/bp-view/best_practices_memo_computer_science_postdocs_best_practices/

Tips on doing an academic job search:

- <http://matt.might.net/articles/advice-for-academic-job-hunt/>
- <http://people.mills.edu/spertus/job-search/job.html>
- <https://homes.cs.washington.edu/~mernst/advice/academic-job.html>

Job Ads:

- <http://cra.org/ads/>



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FINDING A RESEARCH TOPIC: TIME FOR OPEN DISCUSSION!!



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- How many of you have topics you're happy with?
 - How did you find them?
- How many have topics you are not so happy with?
 - How did you find them?
 - What are you going to do about it?



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