Academia Shmacadamia:
A primer on non-academic jobs for astronomers
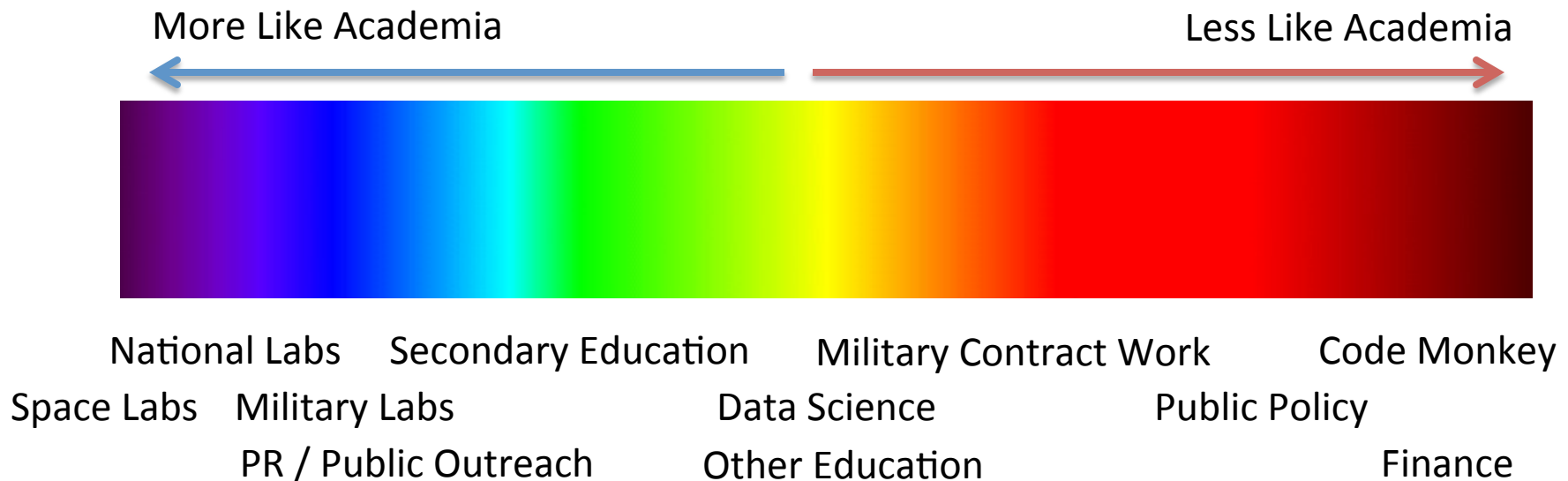
Chris Lindner

What skills do I have?

- Coding
- Independent problem solving
- Understanding how statistics *work*
- Presentation and social skills

Where can I work?

First, decide what it is you are really looking for:

- Where do you want to live?
- How important is money?
- How much flexibility do you want?
- How much job security do you want?
- How much do you like academic environments?

More Like Academia   Less Like Academia

National Labs   Secondary Education   Military Contract Work   Code Monkey

Space Labs   Military Labs   Data Science   Public Policy

PR / Public Outreach   Other Education   Finance

National Labs

- A very wide range of federally funded labs exist that hire PhDs for lots of different things

- Federally Funded Research and Development Centers (FFRDCs) conduct research for the United States Government (e.g. defense, energy)

The Energy Efficiency Standards at Lawrence Berkeley National Lab

- Provide economic analysis in support of Department of Energy's energy conservation standard program for appliances
- Cost/benefit analysis to determine the economic and environmental impacts of adopting energy efficiency standards for appliances
- Standards typically lead to increase in first cost, but overall decrease in energy costs over product lifetime
- Appliance standards are projected to save consumers 1.9×10^{12}
- dollars and reduce carbon emissions by 6.5×10^9 tons of CO_2 by 2030

Life at the lab

-Work on challenging problems analyzing appliance market data and modeling the impacts of efficiency standards

-Rarely work more than 40 hours/week

-Great work/life balance

-Flexible work hours and many group members telecommute

-Group is filled with smart people from diverse backgrounds (physics, astronomy, mechanical engineering, economics...) with a passion for making a positive environmental impact

-We're hiring! Contact mganeshalingam@lbl.gov for more information

Public Policy

Comments from recent grad John Barentine, now employed with the International Dark Sky Association:

I never wanted to be a professor.

People who've never had real jobs in their entire lives aren't usually the best sources of advice about how to get real jobs. So in their defense, while UT Astro was useless to me in trying to find non-academic work, neither did anyone try to get in my way or derail me. Just tea and sympathy, nothing substantially more.

I first started by trying to [get a job in] Public policy. I applied for for the Bahcall Public Policy Fellowship with AAS [and] had a great phone interview. In the end, they picked someone from Berkeley, out of the 55 people who applied. **There are a handful of [public policy] fellowships.** APS sponsors one; AAAS sponsors one that has a pretty good acceptance rate. I'm not sure that I'll ever apply to one of those policy fellowships now, or if I even want to do it anymore. I like the work**, but I don't want to live in DC, which is where all those jobs inevitably live**. I can influence public policy decisions in my current job while avoiding politics.

My non-academic job search that followed was, in short, kind of a trainwreck. It started with applying to about 35 jobs in Austin, for which I got zero calls back. I applied with UT, State of Texas, City of Austin, and some non-profits. None of them required a Ph.D.; all of them had experience requirements I didn't have.

Toward August I began to expand my search radius. **The job I am in now was advertised on Twitter, of all places in the world**, on a Tuesday in mid-August. I spent all day Wednesday writing and polishing the application. Submitted it Thursday morning. By that afternoon, I had an email from the Executive Director asking if I could do a phone interview Friday. About a week later, I was flying out for an interview, and I had the job before the interview was over. It was an amazingly good fit, and there are few people who could do the job without the exact sort of experience I've had. But I had one job offer, in four solid months of searching every day. One offer.

Unless you have very specific, in-demand, highly marketable skills (to make up for the work experience you don't have), no one cares. They're highly unlikely to take a chance on you.

Here are some things I concluded after my job search:

1) I didn't really know people at any of the places I applied. **Getting jobs, academic or otherwise, is about who you know. Period.**

2) I left grad school without a marketable non-academic skill. Translation: I'm not a programmer, nor do I ever want to be one**. I think I'd have had a better chance at applying to jobs for which I'd actually have gotten interviews if I were a coder.**

4) Experience means everything, more than education.

I think getting the first non-academic job out of grad school is inevitably the hardest because of the lack of experience. With some experience under one's belt, a network of contacts, and some non-academic job skills picked up in that first job, it appears to get better from there on out.
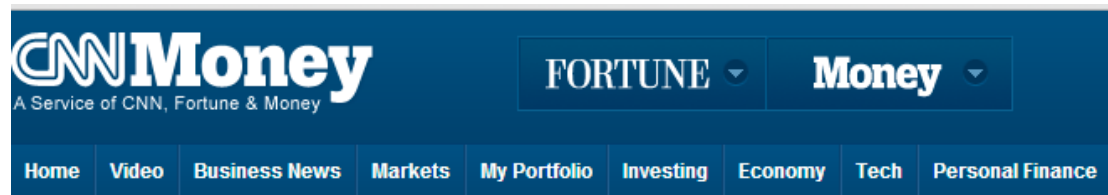
Data Science

A *data scientist* is an individual who applies statistical tools, computational tools, and field-specific knowledge to extract insights from data in an applied context.
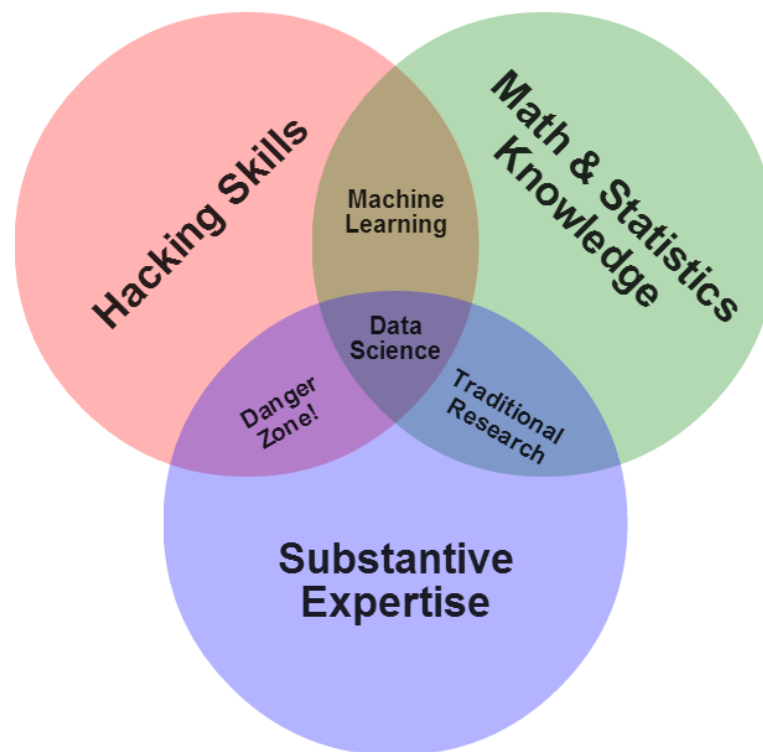
Why Data Science?

- Rapidly growing

- Utilizes the skills you already have: problem solving, computers, and stats

- It's **not** code monkeying

- They are specifically looking for people like us!

Who Hires Data Scientists?

- **Big Companies:** Facebook, Google, Netflix, Microsoft, Twitter

- **Small Companies:** Tech Startups

Where are they hiring?

- San Francisco, Austin, and NYC

How do I prepare myself?

Brush up on basic programming

- Hackerrank, Project Euler, Google Python Class

- Anything you can do with Python, R, SQL, Hadoop, etc.

Take classes

- Coursera: *Data Science* and *Machine Learning*

- UT Classes? *Venture Labs*

Interview Prep

- NAP Time: Monday, 1 PM, Evans Lounge

Work on a project:

Getting an Interview and a Job: Best to Worst

1. Have a personal contact in the company

   -> Meetups, Colleagues, Friends, LinkedIn, SXSW

2. At career fairs

3. Replying blindly to job postings

4. Uploading a resume to a general pool

Resources

- CNS Professional Development Seminars
- *Cracking the Coding Interview*
- NAP Discussions: Mondays 1 PM, Evans
- Insight Data Science Fellowship
- CNS Resources?
- Former Students?

Conclusions

- There are many careers outside of academia

- The most widely available and lucrative ones rely on coding, *but not being a code monkey!*

- National Labs also offer an interesting variety of positions

- Data Science is a thing

- Right now, explore your options, **NETWORK**, and polish some skills

*"I'm a data scientist in ad tech. Interviews for multiple jobs weren't too tough to find due to institutional and personal connections. **The overall spirit seems to be that there are myriad data science jobs, and will only continue to be more**."*

*"I started out working as a software developer and did that for a while, but I realized pretty quickly that it was boring, and that there was a lot of room in most organizations for better decisions based on actual data rather than hunches. **This is basically the position that I started grad school for, even if it didn't exist at the time**."*