Academia Shmacadamia pt. 2: It gets better!
(Careers in Data $cience)

Chris Lindner

Data Scientist, Civitas Learning

PhD, UT Austin Astronomy, 2014

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Overview

- See my previous GSPS talk for details on preparing for a career in DS
  - I still agree with most of the things in there!
- You (yes, you!) can do Data Science!
- You need to spend some time preparing if you want to do well
- The real world is awesome.

Preparing for DS

- I spent about 1.5 years studying, taking courses making contacts, and doing mini projects

- Averaged 2-3 hours a week of preparing

- Practiced interviewing, programming, and data science skills with fellow astro folks in weekly meeting

Finding a Job

- Networking.
  - Meetups
  - Friends of friends
  - Alumni
  - Job / Career Fairs
- I applied to four jobs and ultimately got three offers. All four jobs were found through personal contacts at the companies.

Interviewing for DS

- Interviewing processes vary *wildly*
- Often multi-part, involve projects, and take a long time (1-2 months)
- Most companies try to cover the gambit of "culture fit," statistics, programming, engineering, data science, and machine learning

The Interview Process

Company	Steps in Process	Phone Interview?	Tech Phone Interview?	Take Home Project?	Hours spent on project	Culture Interview?	Whiteboard Coding?	IQ Test?	Data Science Questions?	Stats Questions?	Job offer?	Time to job offer
Company 1	7+	Yes	Yes	Yes	15+	Yes	No	Yes	Yes	No	Yes	6+ Weeks
Company 2	3	Yes	Yes	No		Yes	Yes	No	Yes	Yes	Yes	2 Weeks
Company 3	4	Yes	Yes	Yes	10	No	Yes*	No	Yes	Yes	Yes*	3 Weeks
Company 4	3	Yes	Yes	Yes	20+	No	Yes	No	Yes	Yes	No	6 Weeks

The Interview Process: Phone Interviews

Company	Steps in Process	Phone Interview?	Tech Phone Interview?
Company 1	7+	Yes	Yes
Company 2	3	Yes	Yes
Company 3	4	Yes	Yes
Company 4	3	Yes	Yes

- The first phone interview is usually with HR person asking about your resume

- Might ask about salary requirements, when you can start, etc.

- Some companies also have a separate technical phone interview
  - Low level questions and sometimes programming w/ screen sharing

The Interview Process: Take-Home Projects

Company	Steps in Process	Take Home Project?	Hours spent on project
Company 1	7+	Yes	15+
Company 2	3	No	
Company 3	4	Yes	10
Company 4	3	Yes	20+

- Many companies will have you complete take-home problems to test your data science skills
  - *Adlucent:* Answer some basic stats questions. Perform a T-test on different ad words. Predict how many clicks an ad will get after 100 days.
  - *Indeed:* Given 1,000,000 samples of jobs, salary data, and various other info, build a model that can predict salaries.
  - *Square Root:* Given repair orders from hundreds of dealerships, create a metric to determine which dealership is doing the best job. Tell us some interesting things about the data.

The Interview Process: Culture Interview

Company	Steps in Process	Culture Interview?
Company 1	7+	Yes
Company 2	3	Yes
Company 3	4	No
Company 4	3	No

- "Culture fit" is typically code for can you talk to people and are you someone we'd like to work with.

- These interviews are conducted by HR folks on the phone and/or in person

- The definitely can be make or break

- Some questions you should be able to answer:
  - Explain your research as though I'm a 4th grader
  - Why are you leaving academia?
  - Why do you want to work at this job in particular?
  - What is your ideal work environment?
  - Tell me about a time when…

The Interview Process: Whiteboard Coding

Company	Steps in Process	Whiteboard Coding?
Company 1	7+	No
Company 2	3	Yes
Company 3	4	Yes*
Company 4	3	Yes

```
function fib (n){
  var first, second, sum;
  for (i=0; i<n; i++){
    if(i===0;){
      first=1;
      second=2;
    }
    sum=first+second;
    first=second;
    second=sum;
  }
  return sum; 3 //ran out of space!
```

- Most companies will make you code something on a whiteboard
- Sometimes you'll get to choose the language. Sometimes they'll pick one from your resume.
- **PRACTICE THIS** ON AN ACTUAL WHITEBOARD.
- Typical problems:
  – Fibonacci's Sequence
  – Parse things from a string
  – Sort a list

The Interview Process: Brain Teasers

Company	Steps in Process	IQ Test?
Company 1	7+	Yes
Company 2	3	No
Company 3	4	No
Company 4	3	No

- For the most part, tech companies are moving away from brain teasers / IQ tests

- Classic questions:
  - Why are manhole covers round?
  - Find the next number in this sequence:
    1, 11, 21, 1211, 111221, 312211, 13112221, …

The Interview Process: Stats Questions

- e.g.
  - What's the chance of getting exactly 3 heads in 10 fair coin flips?
  - You have a very long wall and a 100 feet of rope. What is the largest area you can enclose with the rope making up 3 sides of a rectangle?
  - The probability that a sky diver dies while jumping from a plane is 0.001 per jump. A diver wants to do 500 jumps. What is the probability that the diver will die?

Company	Steps in Process	Stats Questions?
Company 1	7+	No
Company 2	3	Yes
Company 3	4	Yes
Company 4	3	Yes

The Interview Process: Job Offers

Company	Steps in Process	Job offer ?	Time to job offer
Company 1	7+	Yes	6+ Weeks
Company 2	3	Yes	2 Weeks
Company 3	4	Yes	3 Weeks
Company 4	3	No	6 Weeks

- This process varies wildly and can take a long time

- Don't get too discouraged by rejection; there are a lot of stupid reasons you can be turned down that are out of your control

- If you get an offer, you'll typically be given some time period to negotiate and accept

The Interview Process: Job Offers

- Expect to get paid $75k-110k starting out in Austin

- Also take 401k matching, bonuses, and equity / stock into consideration

- In general, big, established companies will pay more and have more perks than startups

- San Francisco will pay more, but it can be less when you take cost of living into account. Some of the perks there are insane.

Standard Perks from Most Companies

- No dress code
- No set schedule
- Decent work/life balance (30-55 hrs/wk)
- Health benefits
- Beer on tap. Whiskey everywhere.
- One to ten free meals a week
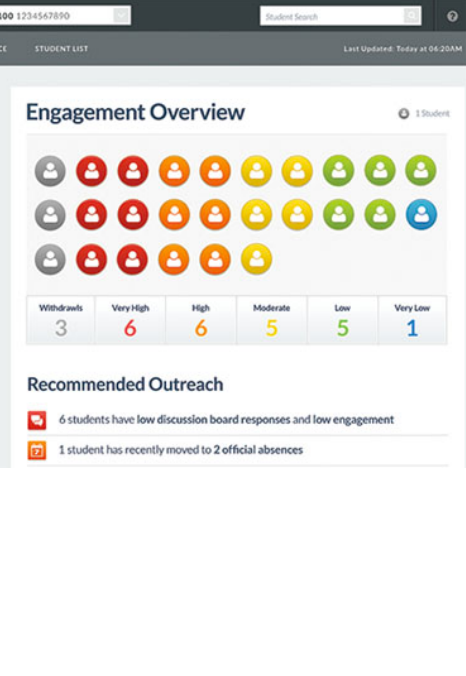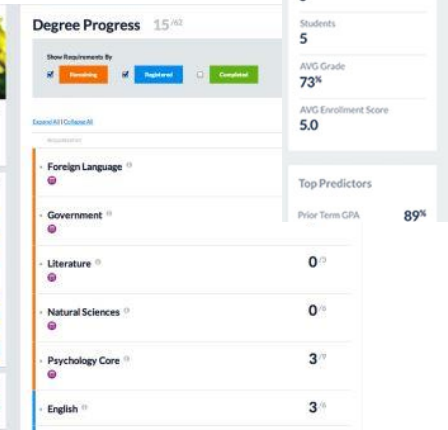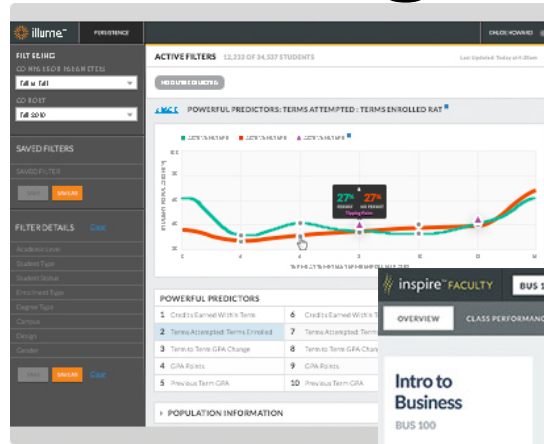- Travel opportunities
- Cool office locations

Things to consider when you get an offer

- What is the role? What tools*? R&D vs. production?* How much freedom in work topic?
- *Are there people there to learn from?*
- Where is the office?
- What is the environment like? Can I work from home? Can I work from another city/country? *How many hours?*
- *Is DS the focus of the company, or just a toy?*
- Is what they're working on cool?
- Will they be around in 6 months? Will my equity be worth money?
- *How much mobility is there in positions?*

Civitas Learning

- Education Technology Startup

- 100 Employees; rapidly growing

- Works with 50+ Universities

- Office on 5th and Lamar

- Predict student success; identify troubled students; develop tools to make universities work better

My Job

- Fully R&D Position
- Lots of folks to learn from. Lots of interaction.
- Lots of praise and recognition.

- [Demo]

Austin Startup Games

Conclusions

- DS is awesome
  - Now is a great time to be in tech; jobs everywhere
- Spend some time preparing and you'll be ahead of the curve
- Network network network