

Course Announcements

Due tonight (11:59 PM):

- Q8
- D8*
- A4*
- weekly project survey (*optional*)

Notes:

Please fill out your CAPEs! (+1% to everyone's grades $\geq 85\%$ response rate)

Course projects are *yours* after the quarter - so when you finish, fork the repo to your GitHub

Guest Lecture videos: [YouTube Playlist](#) (includes previous COGS 108 speakers) and from other courses [here](#)

*due to short datahub outage yesterday, you can submit until Sunday night w/o late penalty; late deadline for A4 does not change (Monday 11:59 PM)

Data Science Jobs

Shannon E. Ellis, Ph.D
UC San Diego

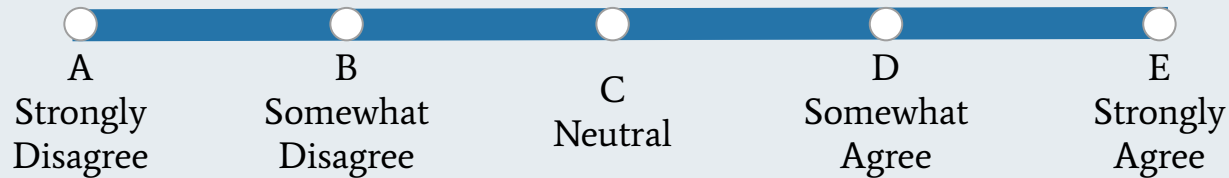


Department of Cognitive Science
sellis@ucsd.edu



Career Certainty

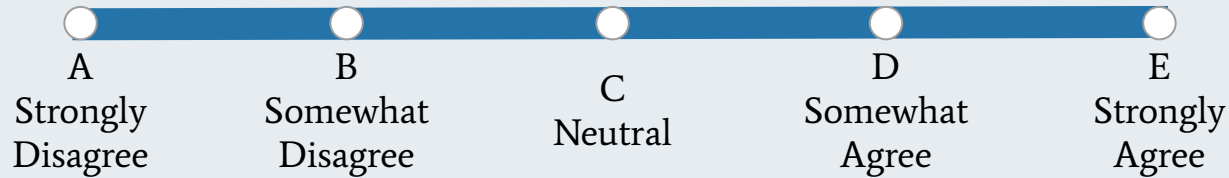
I know what career I want to pursue after graduation.





Data Science Careers

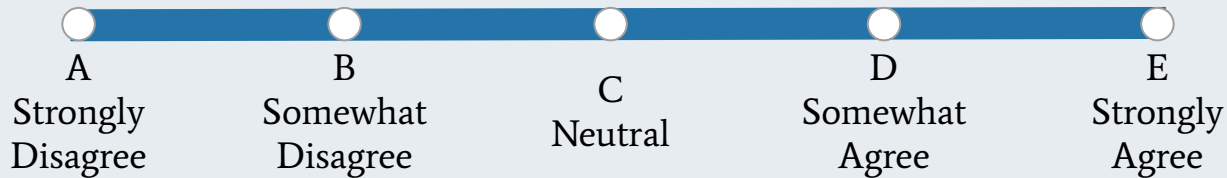
I want to pursue a career in data science.





Path Certainty

I understand the steps necessary to get a job in data science.



“The sexiest job of the 21st century.” “The best job in America.” Data Scientist, a title that didn’t even exist before 2008, is now the position employers can’t hire enough of and job seekers strive to become. There’s good reason for the hype – data science is a hugely growing field with a median salary of over \$100,000 in the United States in 2017. At a good company, **data scientists enjoy a lot of autonomy and are constantly learning new things.** You use your skills to **solve significant problems:** working with doctors to analyze drug trials, helping a sports team pick their new draftees, or redesigning the pricing model for a widget business.

– Robinson & Nolis ([Build A Career In Data Science](#), 2020)

Data Science Jobs

Personas

Finding Your Job

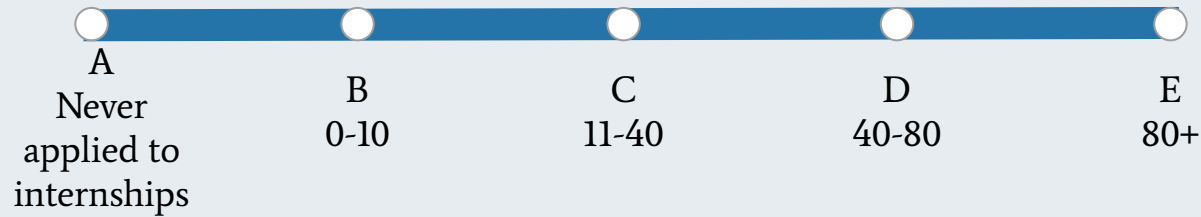
Minimal Advice

Persona 1: “Typical” Undergraduate Job Applicant (According to the Career Center)



Internships

In a given year, how many internship applications did you submit?



Who is Persona 1?

- Little to no relevant past job experience.
- No established professional social network in industry.
- Relevant skills acquired through taking college courses.

Persona 1 Timeline

- Year 1 (Freshman)
 - Summer 1: Relevant Minor Internship
- Year 2 (Sophomore)
 - Summer 2: Relevant Minor/Major Internship
- Year 3 (Junior)
 - Summer 3: Relevant Major Internship
- Year 4 (Senior)
 - Graduate and start job

How Persona 1 Gets Relevant Minor Internship

- Prepare a resume that several people with relevant knowledge about the industry have reviewed.
- Fill out ~100 job applications



adapted from Sean Kross

One Hundred Job Applications!?!?!?

- Assume that 5% of job applications will get back to you *at all* -> this means you could get five interviews.
- Out of those interviews, hopefully 1 or 2 will result in offers.

Persona 2: The Technical Hustler

Persona #2: The Technical Hustler

- The visibility of technical jobs is *democratized* in a way that other careers are not.
- It's possible, easy, and expected to openly share artifacts from your work.

Who is Persona 2?

- Little to no relevant past job experience.
- Working to establish a professional social network in industry.
- Relevant skills acquired through taking college courses, learning independently, and sharing their learning process.

Persona 2 ~~Timeline~~ Goals

- Establish a Web Presence
 - Share technical projects
 - Write about experiences creating projects
 - Talk about it on Twitter under the right hashtags
 - Help others online in forums and Q&A sites
- Attend Meetups and Conferences
 - Talk to others about the work that you do and the work that you're interested in.

Persona 1

VS

Persona 2

Data Science Jobs

Personas

Finding Your Job

Minimal Advice

Build A Career In Data Science (2020)

Part I: Getting Started With Data Science

- What is Data Science?
- Data Science Companies
- Getting the Skills
- Building a Portfolio

Part II: Finding Your Data Science Job

- The Search: Identifying the Right Job for You
- The Application: Resumes and Cover Letters
- The Interview: What to Expect and How to Handle It
- The Offer: Knowing What to Accept

Part III: Settling Into Data Science

- The First Months on the Job
- Making an Effective Analysis
- Deploying a model into production
- Working with Stakeholders

Part IV: Growing In Your Data Science Role

- When your Data Science Project Fails
- Joining the Data Science Community
- Leaving Your Job Gracefully
- Moving up the Ladder

1. The Search: The Right Job

Know where to start:

- LinkedIn, Indeed, and Glassdoor
- POCIT and Tech Ladies, for people of color and women in technology respectively
- job boards for specific types of companies like startups (AngelList) and technology (Dice)
- specific company's careers page
- Twitter & Meetups

Watch for red flags:

- No description of company or job
- A job that is actually three jobs

Demand Fit, not Perfection

Advice for new grads

If you're about to or just graduated college, your most relevant skill is your education. Your data science portfolio will be helpful here too. When you're searching for jobs, look for positions specifically titled "New Grad," "Junior," "Associate," and "Entry-level." Also look at your career center for help and go to any job fairs that happen on campus. Internships are relevant – less for what work skills you learned and more that it shows you can come to an office each day, be professional and productive.

On Job Descriptions

The first thing to keep in mind is that job descriptions are generally wish lists with some flexibility. If you meet 60% of the requirements (e.g. you're a year short of their required work experience or haven't worked with one component of their tech stack), but are otherwise a good fit, you should still apply.

A job by many names...



Data analyst
entry level
Analyze data &
create reports



Product analyst
job varies
Focuses on one
part of the
company



ML engineer
software focused
Build ML models
to power the
business



Research scientist
theoretical
Research focused
job, requires
advanced degree

FULL STACK DATA SCIENCE

**DATA
ENGINEER**

**COLLECT
DATA**

**BUILD DATA
PIPELINE**

**DATA
ANALYST**

REPORTING

DATA VIZ

**DATA
SCIENTIST**

**BUILD
MODELS**

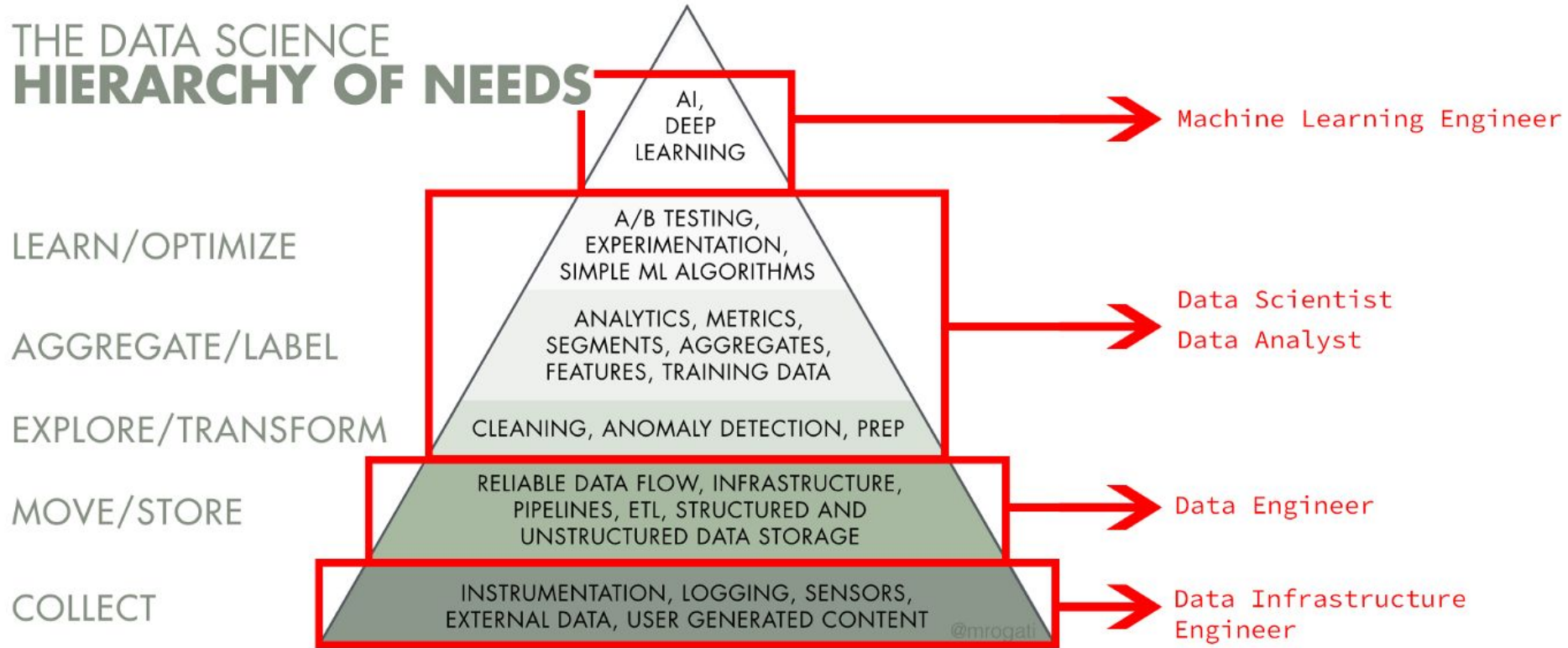
**RUN
STATISTICAL
TESTS**

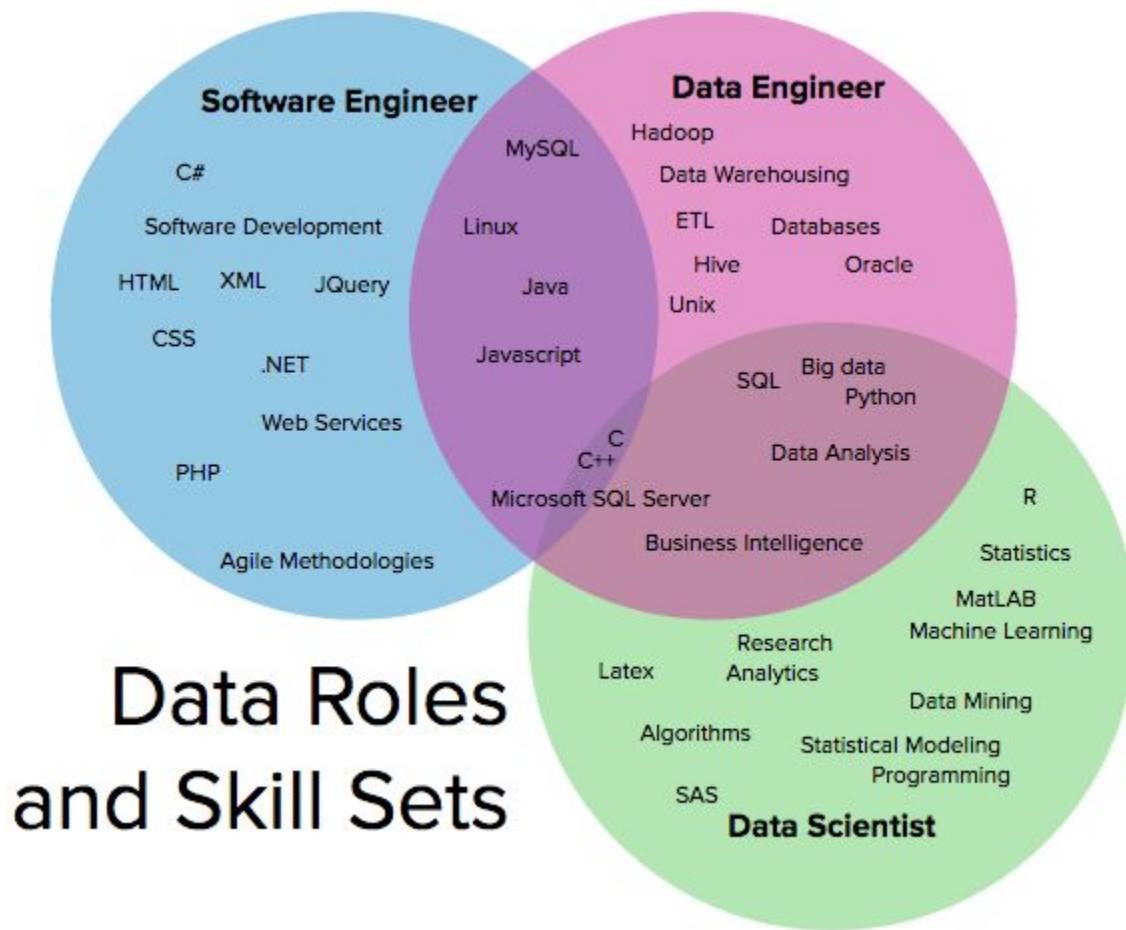
**MACHINE
LEARNING
ENGINEER**

**DEPLOY
MODEL**

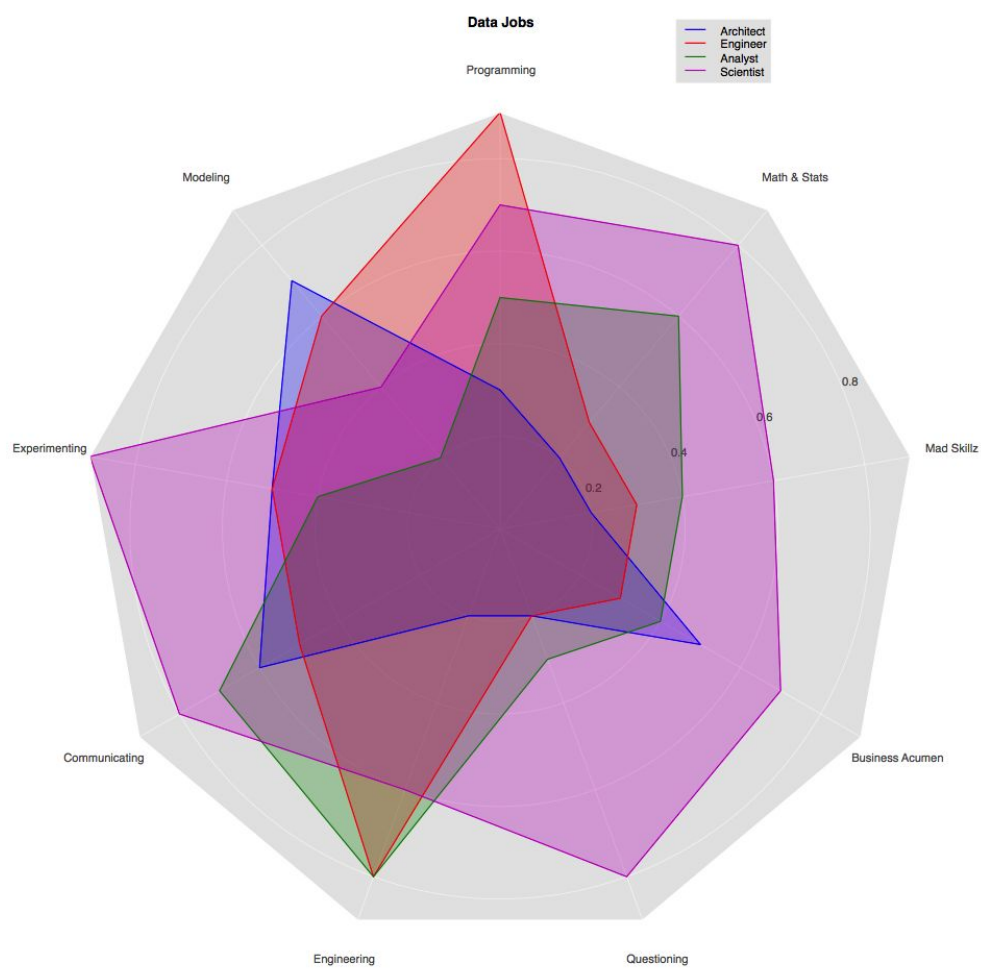
**MONITOR
MODEL**

THE DATA SCIENCE HIERARCHY OF NEEDS





Data Roles and Skill Sets



2. The Application

- Resume *and* cover letter should be compelling
 - Resume:
 - goal is to get you an interview, not a job
 - Better be skimmable
 - Includes: contact info, education, experience, and skills

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EXPERIENCE

JUNE 2019 – PRESENT, SAN FRANCISCO, CA

DATA SCIENCE FELLOW, AWESOME BOOTCAMP

- Built a web application in Python that recommends the best New York City neighborhood to live in based on someone's budget, lifestyle preferences, and work
- Analyzed 2,200 New York Times business articles (obtained via API) using natural language processing (TFIDF and NMF), visualizing how topics changed over time

AUGUST 2017 – JUNE 2019, SAN FRANCISCO, CA

INVESTMENT CONSULTANT, BIGCO

- Created a forecasting model in Python that boosted quarterly revenue by 10%
- Automated generating weekly market and industry trend reports

SEPTEMBER 2016 – JUNE 2017, NEW ORLEANS, LA

INTRODUCTION TO STATISTICS TEACHING ASSISTANT, COOL UNIVERSITY

- Led weekly review sessions of sixty students, earning a 4.86/5 rating in evaluations
- Created and open-sourced study guides that have been downloaded over 1,500 times

JUNE 2016 – AUGUST 2016, NEW ORLEANS, LA

ECONOMICS RESEARCH ASSISTANT, COOL UNIVERSITY

- Conducted an in-person experiment on decision-making with 200 participants, using cluster analysis to analyze the results in Python
- Published the resulting paper in the Journal of Awesome Economics

EDUCATION

JUNE 2017, NEW ORLEANS, LA

BA ECONOMICS, STATISTICS MINOR COOL UNIVERSITY

GPA 3.65/4.0

Relevant Coursework: Linear Algebra, Introduction to Regression and Statistical Computing, Experimental Design, Econometrics, Elements of Algorithms and Computation

SKILLS

- | | |
|--------------------|----------------|
| ▪ Python | ▪ Pandas |
| ▪ SQL | ▪ Seaborn |
| ▪ Machine learning | ▪ Scikit-learn |
| ▪ Git | ▪ NumPy |

2. The Application

- Resume *and* cover letter should be compelling
 - Resume:
 - goal is to get you an interview, not a job
 - Better be skimmable
 - Includes: contact info, education, experience, and skills
 - Cover Letter
 - Should highlight both why you want *this* job and why *you* are a particularly good fit
 - Demonstrate your research/knowledge about the company and position
 - Tailor these for each job
 - Allow them to be machine-searchable
 - Referrals are a way to back-door past the algorithms
 - If contacting someone (LinkedIn, Twitter), give them a reason to read your message

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GREETING

Dear Jared,

INTRODUCTORY PARAGRAPH

I am writing to express my strong interest in applying for the Data Scientist position at Awesome Company. I've enjoyed reading Awesome Company's data science blog since it started 8 months ago. The post on using topic modeling to automatically generate tags for your support articles was immensely helpful in one of my own projects to classify articles in the New York Times business section.

1-2 PARAGRAPHS OF DATA SCIENCE WORK EXAMPLES

I recently graduated from Awesome Bootcamp, a full-time, 3-month Data Science immersive. At Awesome Bootcamp, I designed, implemented, and delivered data science projects in Python involving data acquisition, data wrangling, machine learning, and data visualization. For my final project, I gathered 3,000 neighborhood reviews and ratings from Neighborhood Company. By using natural language processing on the reviews and available listings from Real Estate Company's API, I built a recommendation system that will match you to a neighborhood based on your budget, preferences, and a free-text description of your ideal neighborhood. You can try it out here: myawesomewebapp.com.

Prior to Awesome Bootcamp, I was an Investment Consultant at BigCo. When I joined, my team of six was all using Excel. While exceeding my targets, I began automating common tasks in Python, such as generating a weekly market and industry trends report, saving the team hours each week. I then developed a tailored curriculum to teach them Python. The initiative was so successful the company asked me to develop a full 2-day workshop and flew me out to three other offices to teach it, reaching over 70 consultants.

CLOSING PARAGRAPH

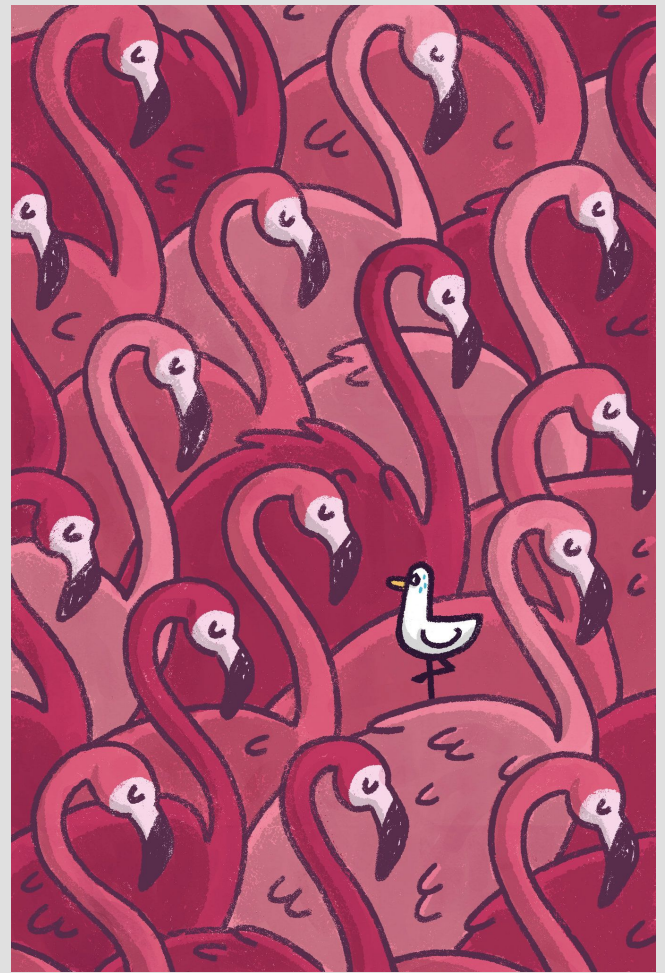
I am confident that my expertise in Python, academic training in Economics and Statistics, and experience delivering business results would make me a great fit for the Data Science team. Thank you for your consideration.

SIGNOFF

Sincerely,
Sara Jones

Figure 6.2 An example cover letter with highlights showing the different components

How are you
going to stand
out in the
crowd?



adapted from Sean Kross





3. The Interview

Basic understanding of you/position; assessment of fit

Are you able to do the job? Are you a good fit?

Take-home assignment to determine your
problem-solving and technical skills

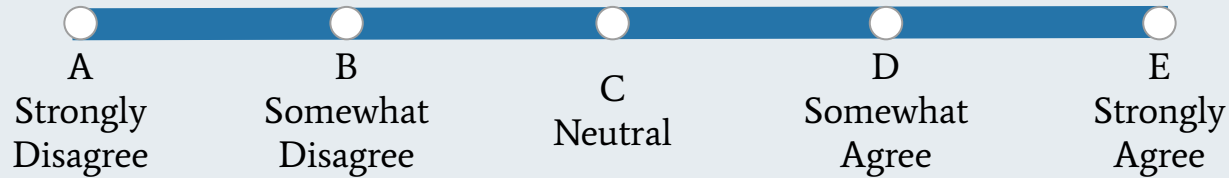
Tie up loose ends, presentation,

	1. Phone interview
	2. In-person interview
	3. Case study
	4. Leadership interview and offer

Negotiations



I understand the process of negotiating a job offer.



4. The Offer

1. Offer is coming - general outline of offer coming your way
2. Company makes an offer - often in email; get it in writing; includes salary, start date,
3. You respond - thank them for offer and let them know you're excited to look it over in detail
4. You negotiate - lay out what you want/need to accept the offer; best for you
 - a. What is negotiable? Salary (5%), start date, vacation, flexibility, earlier review (earlier raise), educational benefits, budget for travel/conferences, benefits (less often), options
 - b. Best lever: a competing offer
5. You decide - communicate final decision

Data Science Jobs

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Minimal Advice

Getting Your First Job in Data Science in Summary:

- Learn one programming language extraordinarily well (Python, R).
- Learn SQL extraordinarily well.
- Learn how to set up and interact with cloud computing services.
- Know how to *think* and *communicate* about data
- Create a resume and have a few people with relevant knowledge help you revise it.
- Establish a professional web presence.
- Be prepared to apply to many dozens of jobs.

Special Thanks



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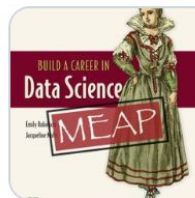
Resources

- [Data Science Is Different Now](#) (blog post)
- [Advice for Applying to Data Science Jobs](#) (blog post)
- Build a Career in Data Science (bestbook.cool) (book)
- Getting Your First Job in Data Science ([slides](#))



Emily Robinson @robinson_es · 6h

Excited to announce the final version of @skyetetra's and my book, Build a Career in Data Science, is now out as a pdf! Physical books will ship Friday and ePub/Kindle are available in a few weeks. It's also 50% today with code DOTD030920!



Build a Career in Data Science

It's by far one of the best books if you want to prepare yourself for a career in Data Science. It ...
🔗 manning.com



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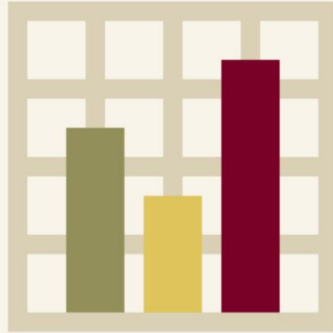


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https://twitter.com/robinson_es/status/1237010792983277569

BUILD A CAREER IN DATA SCIENCE



A podcast with practical career advice for *you*.

You are going to need more than technical knowledge to succeed as a data scientist. The Build a Career in Data Science podcast teaches you what school leaves out: from how to land your first job, to the lifecycle of a data science project, and even how to become a manager. This podcast is an extension of the similarly named book, *Build a Career in Data Science*.

New episodes every other Thursday