

# Data Science Resources

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## Questions from Vandana

### Developing a Data Science Resume that has an Impact

#### ● What are key components of a resume?

Work experience, education, projects, skills, summary

Contact info (name, address, email)

- reverse chronologically, some ATS will rank keywords importance proportional to the location to the doc (e.g. on top, more recent, more important)

- balance content

- if ! not enough work experience in DS, add more in projects,

- if no formal degree, fill up with classes and certifications

- needs to show applicable experience in DS (2-3 jobs or large projects)

- needs to show off your specific hard skills and toolsets - should be more than just in your skills section

○ What is the best way to develop a resume for the following types of people aiming to enter Data Science? What is good structure/components that should be included? Here it may be good to have 4 types of examples for the following types of people:

■ New grads

- People with no working experience in analytics or tech
- Experienced analysts outside of tech
- Software engineer transitioning into Data Science

- No DS experience
  - Requirements
    - Online degrees / minimal classes and/or demonstrable project experience
  - Fold data analysis tangential experience in work, e.g.
    - Product consulting for a real estate photography startup -> re-organized client data and behavior into week over week, month by month and seasonal breakdowns -> helps them with scheduling and revenue prediction
  - Highlight projects, courses certifications and your skillset
  - Show DS initiative in current role
- Tangential DS work experience - easier
  - Example - Industrial design (data science) - questionable but it happens
    - Bioinformatics much closer
    - Highlight quantitative analysis in your education
  - Updated linkedin and resume
    - Relevant data science skills and keywords
      - **Lots of different variations of data scientist job titles - resumes should be customized to the job description's job title**
    - 95% of recruiters use linkedin to source or vet candidates
    - Take data science initiatives in current role (most kinds of data analysis can be rephrased into data science experience on the job)
      - Be creative - debugging bugs -> predicting number of bugs based on code churn from checked in code
  - Recruiter at amazon
    - Recruit at top schools -> shortage
    - Kaggle, published papers, ML conferences,
    - Large linkedin queries for sourcing
      - Very specific queries not just deep learning, keras or tensorflow

○ What is the most appropriate way to phrase professional or academic experience in the resume? (i.e. STAR method or something else)

> personally not a hardliner on STAR, but helps some folks contextualize -> action and result might be a bit easier framework, STAR would be helpful for resume highlights, not necessarily bullet by bullet

- Start from scratch
  - start with what you do on the job
  - add accomplishments (e.g. what your manager or peers praise you for)
  - add effect, or results (quantifiable results) for a good portion of your

bullets (maybe 50%)

- Polish
  - Action verbs, rephrase, check for word redundancies
  - Add skills and tools
- Writers block? Check out similar resumes / linked in profiles -> put yourself on private browsing mode

■ How should people think about structuring or designing their resume that do not have clear industry objectives or a clear customer?

> industry objective / personal statement optional, but helps especially if you don't have as much DS experience

- Much easier to do when working on your resume specific to a job - its a paraphrase of what the job description is asking for
  - Do this for enough jobs you're interested in, and you should have a good general objective statement
- Very good opportunity to add keywords and job titles, don't use buzzwords  
Don't add these:  
<https://www.themuse.com/advice/10-words-recruiters-hate-seeing-on-your-resume-and-10-they-love>
- This is a good resource on story telling:  
[How to Write the Perfect Data Scientist Resume](#) - also we can go over some jobscan specific tips
- JS blog on resume tips:  
<https://www.jobscan.co/blog/writing-your-resume-work-experience/>  
<https://www.jobscan.co/blog/resume-tips/>

○ How should people position themselves and gain entry into data science positions that have relatively less experience? That is what strategies may be effective for 4 types of people above?

> no DS exp:

- Focus on projects if no tangential work experience
  - Pick an interesting project(s) on kaggle relevant to the industry or companies you want to work for, spend some time looking over the wisdom of others, create your own jupyter notebook and draft an EDA and some learnings. Go deep if you can and understand the space. Its a good way to show off your skills and helps you build your DS portfolio
- Accruing work experience - hard time breaking into ML/DS roles at Amazon/big tech
  - Data science jobs available in many different industries - perhaps playing to industry strength might be a good way to transition, e.g. everyone needs data scientists
    - Rough analysis by industry (se versus ds)
  - Intern/Volunteer at a local company, e.g. intern

- Intern position (no formal training needed, just a sense of passion for DS)
- Jobscan volunteer
- Data science initiatives at current job - pitch it to your boss as a project with positive ROI

Technical / DS exp:

- highlight relevant work experience
- makeover / tuning of resume and linkedin
- go for internships

Seeing a quite impressive resume for a marketing position we had - except when we vetted that person's linkedin, the companies they worked at was the same, but all the job titles were wildly different. Recruiters will understand variations like software engineer or developer

○ How should people balance breadth versus depth of skills listed on the resume? How do you link the objective of getting through ATS versus getting through the interview process?

1-2 pages is ok - recruiters won't pass up a spectacular 2 page resume

- highlight specific skills for the job you're applying to
  - best if they require Python and SQL, and you have a couple bullet points listing python and SQL. make sure to include that in your bullet(s) - required skills ideally should appear at least twice
  - relevant to the company (specialist versus generalist) - you can usually tell by the level of the position or type of role

● What are key findings regarding ATSs that people should be aware about and how critical is it to get a high match score?

> format really matters because most ATS will try to parse - quick hacky way to tell if your resume is parsible is in PDF or docx, copy all of the text, paste into notepad or sublime (something that will strip all your formatting) and see if its still readable. If there's interweaved sections or text on top of each other, you might be in trouble

> skills and keywords - test ATS, taleo ranks based on number of exact matching keywords, e.g. product manager != product management and sales != sale

> UW Ascend workshop

[https://docs.google.com/presentation/d/1dxo\\_akz5XbRrnEY9JUCBDuNPG-swqgbvKaRNfziWH9R8/edit?usp=sharing](https://docs.google.com/presentation/d/1dxo_akz5XbRrnEY9JUCBDuNPG-swqgbvKaRNfziWH9R8/edit?usp=sharing)

○ How should people think about the match score on Jobscan versus Linkedin versus Indeed?

> Jobscan focuses a little more on specific job descriptions, skills and more of a

one-sided market. LinkedIn won't allow you to optimize your resume per job, and indeed, while it's a great source of job matches, (jobscan uses indeed for job matches too), would have lot of incentives built from the recruiter perspective, e.g. we can get you, microsoft, 50 more applications. They won't give you ATS or company specific suggestions to optimize your resume per application. But they both are really important resources for your job search.

> the match rate on jobscan needs a bit more clarity, it's modeled after ATS, which isn't smart - exact match. 80% is general guidance -> modeled after keyword matching from ATS

- Taleo, icims

● What are key skills that may stand out in a data science resume?

> depends on the job - research what big companies want, if you are keen on a specific company but specific frameworks, and ability to apply data science generally across the board instead of one single project is helpful

> company specific examples are helpful here

- analyze data from the top companies by aggregating and tokenizing the text, you'll see very different patterns and skills

[https://s3-us-west-2.amazonaws.com/sophiaxcui.com/data/ds\\_jobs/jobs\\_xml\\_DS62.json](https://s3-us-west-2.amazonaws.com/sophiaxcui.com/data/ds_jobs/jobs_xml_DS62.json) - 12000 DS and related jobs from 2018

- Spread of industries, spread of different job titles for 'data scientists' - compared to SE, the boundaries are sign more fuzzier
- Redshift for amazon, azure for microsoft
- Could also run an aggregator on bi grams and see what the data science buzzwords are there too.

## Start-Up versus a Big Company

● How might desired data science skills differ in start-up versus a big company? In particular what would you look for when searching for a person to doing Data Science in your company?

> big company likely to have internships (competitive but great way to break in w/o much previous WE), usually light on the skills requirements too. Depending on the group, you'll likely be doing much more routine tasks, and specializing. You'll have mentors

> smaller company

> immediately helpful vs. training to be part of a team

> specific job experience / industry specific experience - both - larger companies part of a division

> smaller company sometimes doesn't know exactly who they are looking for because they require someone to do a little bit of everything, (BI, modeling and analysis, more self driven initiatives) - bc there's such a variety of tasks that are needed but we don't know are needed

- does depend on the company - some smaller companies that founded on DS/ML will require more exp

● What should people consider when deciding if the start-up environment is the right fit to do

data science versus a larger more established firm?

> depends on the startup - different cultures, most startups are VC funded, so there's a lot of pressure to deliver in addition to a runway, trajectory of growth, volatility, but your impact is usually huge and can make a substantial difference. Quicker pace, amount of responsibilities, diversity of experience, working really hard, autonomy, not having regrets

- good friend, mentor founder of a successful education startup a few years ahead of me. When i was deciding between whether to go bigger company or do my own thing, he said, honestly, it seemed more glamorous before i started, and i can't honestly recommend what i went through to anyone. Granted he was a founder and there's drastically higher pressure on the founders

> a few years ago, at zynga, we had one dedicated data scientist on our team of about 30. He was super smart and polisci major

> where to find the job - startups - angellist versus larger boards

● How easy is it to transition to Data Science from an unrelated field in a big company?

> in the company? Internships are great! I saw an opening on twitch for a data analyst intern

> <https://jobs.lever.co/twitch/5fb0a78b-3066-4e2a-90ee-b4199bc7ce8d> no education requirements, just skills requirements

● What do you think about people doing start-up work to break into a data science career?

> i think its great! We had an intern that helped out a bit - she was great, and now is starting work at Autodesk as a data scientist

> depends on the startup too - vet the startup or set clear expectations. Don't do free work unless it's a last resort. negotiate!

## Job conversion rate

> these are probably not black and white. Some folks will munge their industrial engineering degree into data analytics, e.g. traditional academic route -> is this limited to data science degrees? Many folks are from engineering backgrounds who phrase their master projects or have some data science experience in non-data science roles

● When is a bootcamp good versus more traditional academic route (i.e. pros and cons)?

> our first engineer was from a engineering bootcamp, and he's really great and been with us every since.

> a good percent of data science jobs doesn't require a DS degree - e.g. internships and entry level positions are positioned for talented DS born out of passion who doesn't have the opportunity cost to pursue a full time degree

> particularly specialized position, e.g. NLP researcher for a tech startup that focuses on text processing

> amazon searches for DS/ML degree engineers for their higher level jobs

> diversity of data science jobs -> bring up analysis ->

Depends on end goal, e.g. dream data science job?

## Insights from Jobscan data (Visualizations if possible)

> <http://people.ischool.berkeley.edu/~sophia/assignment2.html>

- What is the job posting diversity that you have observed on Jobscan for Data Science jobs?
- What is the average resume vs job description match rate achieved on Jobscan? Would you like to share more interesting insights about this?
  - > Most folks start scanning at around 30% -> 50/60% highly dependent on industry / job
- What do you think is the current supply/demand ratio in Data Science?
  - > SQL is almost a must, unless its a more niche specialized role
  - > demand is greater than supply, but supply is mismatched
- What types of resumes tend to have an edge over others?

Last, but not the least - What does it take to be a CTO? :)

> same friend, first gig as a CTO, sent me a linkedin article on the 5 flavors of a CTO. it's a pretty nebulous role, and a lot of is setting expectations to your CEO or founders where you want to focus and where you will need help, and where you can grow. I wish i knew this a bit earlier in the pipeline too, because it's easy to own almost everything in a technical startup if your the CTO, but that doesn't scale and easily can lead to burnout.

> for a budding startup, you'll likely need to be a diligent engineer, or be able to recruit, encourage and nurture a small team of fantastic engineers.

> work hard and be productive without direction, good communication to your CEO and your team, be confident in your technical decision making, be ethical, CEO decisions are more business and strategic - which means public and usually has checks and balances. Ethical technically has less checks and balances but is also really important and could have high impact to your users about how you handle PII, storing passwords, not copying someone else's code, treat user feedback and bugs with respect, when there's a security issue, being transparent and prioritizing the fix if its high impact.

> Google sheets sign up - 3 month premium Jobscan

## Job Search Websites

- [AngelList](#)
- [Code for America Government Jobs Board](#)
- [Data Science Central: Analytic Talent](#)

- [Data Visualization Jobs Google Group](#)
- [Dice](#)
- [Edsurge educational technology job board](#)
- [Experfy](#)
- [FlexJobs](#)
- [Glassdoor](#)
- [Hired](#)
- [Idealist](#)
- [Indeed](#)
- [Internet Law & Policy Jobs](#) (from the Foundry)
- [Kaggle](#)
- [KD Nuggets](#)
- [Lerer Hippeau Ventures Talent Tracker](#)
- [LinkedIn](#)
- [The Muse](#)
- [Open Data Science](#)
- [Path Forward](#): mid-career internship programs for people restarting their careers after time spent focused on caregiving
- [SharpestMinds](#): internships that lead to full-time jobs in machine learning
- [Simply Hired](#)
- [Spec.FM Slack Channel](#)
- [Stackoverflow Careers](#)
- [Women in Security and Privacy \(WISP\): Security & Privacy Job Board](#)
- [ZipRecruiter](#)
- For Internships:
  - [Intern Supply](#)
  - [WayUp](#)

## Resume Writing

Berkeley's Recommendations on Data Science Resumes

<https://drive.google.com/file/d/16nWReofjcsgXbrxOfJugZQJoq0zm0ljr/view?usp=sharing>



[Resume Basics](#): Required elements, personalized elements, sample action verbs, and how to give a great first impression — use these basics, as well as your personal brand, to create a successful resume which lands you the interview.

[Sample Resume Template](#): This template can be used as a guide and example for resume formatting. Keep in mind, there are many ways to format a resume, and this is only one example! As you use this guide, be careful that you pay attention to the built-in formatting (e.g., spacing) so that you keep the look of your resume consistent.

[How to Write the Perfect Data Scientist Resume](#), from EliteDataScience (October 20, 2017)

[How to Email Busy People](#) (tips for introductory emails), from Sparring Mind

[How to Write A Cover Letter](#), from Glassdoor Guide

[What Your Resume Should Look Like in 2018](#), By Kristen Bahler, *Money* (January 2, 2018) (with downloadable template)

[43 Resume Tips That Will Help You Get Hired](#), by Erin Greenawald, from The Muse

[Best Practices for Building Your Google Tech Job Resume](#), from Paysa (August 17, 2017)

[Write a Résumé that Travels Across Countries and Cultures](#), *Harvard Business Review Blog Network* (May 3, 2012)

## Interview Tips

Data Science aggregated interview resources (PDF)

<https://drive.google.com/file/d/1t4rot4n104VZSpm5HLRtNHlcUrYAawHi/view?usp=sharing>

## Data Science Reads

**Data Science Tips from Jason Goodman**

[https://docs.google.com/document/d/1bz9mhY\\_cEtR4pZjT5bsb7Vn6t\\_-AZnCGWED4N1h\\_e6c/edit?usp=sharing](https://docs.google.com/document/d/1bz9mhY_cEtR4pZjT5bsb7Vn6t_-AZnCGWED4N1h_e6c/edit?usp=sharing)

## General Recommended Reads

[The Data Analytics Handbook](#), an in-depth look at the data science industry

[Doing Data Science Right- Your Most Common Questions Answered](#), by Jeremy Stanley (Instacart VP Data Science). First Round Review

[How to Consistently Hire Remarkable Data Scientists](#), by Jeremy Stanley (Chief Data Scientist and EVP Engineering at Sailthru). First Round Review

[Analyzing the Analyzers: An Introspective Survey of Data Scientists and Their Work](#), by Harlan Harris, Sean Murphy, Marck Vaisman. O'Reilly (June 2013) (free e-book)

[2014 Data Science Salary Survey: Tools, Trends, What Pays \(and What Doesn't\) for Data Professionals](#), by Roger Magoulas and John King. O'Reilly (November 2014) (free e-book)

[2015 Data Science Salary Survey](#), by John King and Roger Magoulas. O'Reilly (September 2015) (free e-book)

[Where should you put your data scientists?](#) by Daniel Tunkelang. O'Reilly (January 2016)

[2016 Data Science Salary Survey: Tools, Trends, What Pays \(and What Doesn't\) for Data Professionals](#), by Roger Magoulas and John King. O'Reilly (September 2016) (free e-book)

[2016 Burtch Works Executive Recruiting Data Science Salary Study](#). (free e-book)

[2016 Burtch Works Executive Recruiting Data Science Salary Study](#). (free e-book)

[The Team Solution to the Data Scientist Shortage](#), by Jeanne G. Harris, Nathan Shetterley, Allan E. Alter and Krista Schnell. Accenture Institute for High Performance (2013)

[Women in Data: Cutting-Edge Practitioners and Their Views on Critical Skills, Background, and Education](#), by Cornelia Levy-Bencheton. O'Reilly (January 2015) (free e-book)

## Miscellaneous

### UX Class Project (Data Science Viz)

<http://people.ischool.berkeley.edu/~sophia/assignment2.html>

## Example Resumes Transitions

### Rephrasing their degrees:



#### Data Scientist

Reliance

Jul 2014 – Jun 2015 · 1 yr

KGD6 BASIN

- Performed time series analysis and other forecasting methods like ARIMA to predict crude oil prices
  - Handled large data sets including data in unusual formats, transforming data into a usable form, and aggregating data as needed using a variety of tools including Python and R
  - Developed quantitative analysis of daily crude oil production and created visualizations using Tableau and Rshiny
  - Wrote MySQL scripts and built indices to extract data efficiently from remote databases
- [See less](#)

### Education



#### Texas A&M University

Master of Science (M.S.), Industrial Engineering (Data Analytics)

2015 – 2017

### Internship transition:

**Amazon**

1 yr 8 mos

**Data Scientist**

May 2018 – Present · 1 yr  
Greater Boston Area

**Analytics Engineer**

Sep 2017 – May 2018 · 9 mos  
Greater Boston Area

**Intern - Consultant, Global Services (Data Analyst)****PerkinElmer**

Aug 2016 – Jun 2017 · 11 mos  
Waltham, MA

**Software Analyst****Accenture**

Nov 2013 – May 2015 · 1 yr 7 mos  
Mumbai, India

- Designed and implemented email functionality using ASP.NET and web services which performed 50% of the claims business communication with the clients; awarded with 'Instant Karma' for providing scalable solution
- Devised and developed a web application 'NCOA' that records inserting of 35,000 ... See more

**Education****Northeastern University**

Master's Degree, Information Systems  
2015 – 2017

**University of Pune**

Bachelor's Degree, Electronics and Telecommunication

**Berkeley DS Resume Template**

## Education

**University of California, Berkeley** – Master of Information and Data Science 2015 (anticipated)

**Relevant Courses:** If you list relevant courses, be sure the titles make sense to the reader! Don't list a course they wouldn't know! Another section you could list instead of relevant courses is "focus areas"; if you do this section, be sure that your focus areas make sense together and don't paint a picture of you as "unfocused".

**University of Wisconsin, Madison** – Bachelor of Computer Science 2010

## Projects

**Title of Project, Role, Place** Date

Description: You can also format your project section to match your formatting in the experience section. Either way!

**Title of Project, Role, Place** Date

In your description of the project, be sure to include not just information on the project- but what you did.

**Title of Project, Role, Place** Date

Emphasize the tech tools you used, the languages you coded in, your role on the team, stakeholders or results.

## Skills and Tools

- 
- NoSQL data stores (Cassandra, MongoDB)
- Hadoop, MySQL, Big Table, MapReduce, Mahout
- D3.js, Tableau
- Python, iPython, C, C++, Java, Javascript, R

## Experience

**Business Name** **City, State**

**Title** date – date

- List your jobs from most recent to least recent.
- If you've been at one job for a long time or have a LOT of experience there (i.e., a lot of bullets), you can break up the bullets by subheadings such as "leadership & innovation", "technical skills", "projects", etc.
- Start your descriptions with action verbs! Use implied first tense. Speaking of tenses, pay attention to them! Be sure you are using the right tenses.

**Business Name** **City, State**

**Title** date – date

- The most important thing you should do when writing your descriptions is to showcase your strengths, skills, and accomplishments. Do NOT just write what you did (i.e., what you were responsible for, what tasks you completed). Always include some element of why you did it, or how you did it, or who you did it with (i.e., how you collaborated or communicated), or what impact you made. |
- Make sure descriptions are action oriented and talk mostly about what you did, not what the product was or what the project accomplished. Spoonfeed the reader; spell out why it is relevant.

**Business Name** **City, State**

**Title** date – date

- A good article to read to gain information about what to put in the description can be found here: <http://ti.me/1IEKMdM>