

Transitioning from Academia to Industry

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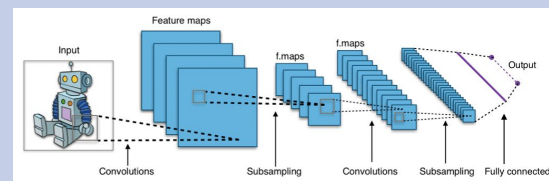
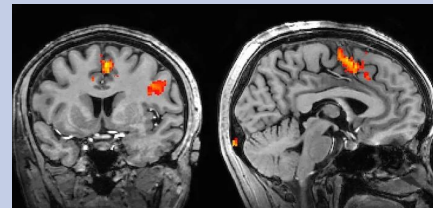
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BA Philosophy and
Cognitive Science

UCLA

PhD Cognitive Psych



Overview

1. What kind of careers exist in data?
2. What are the different roles and responsibilities?
3. Some Industry Examples
4. What does it take to get a job in this field?
5. Insight Data Science and Transitions

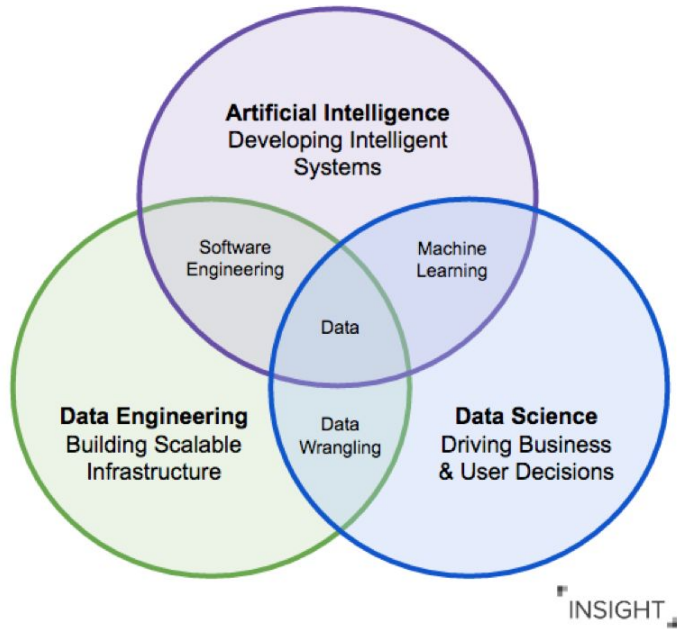
Why increase in interest in data?

- Information Explosion & Big Data
 - People were ready to share information
 - We had means of sharing the information
- Data Driven Decisions
 - Not taking decisions based on “gut”
 - Better understanding of users
 - Personalized services: Recommendations
 - Driving business through analytics
- Technology Advancements

What kinds of careers exist in data?



Careers in Data

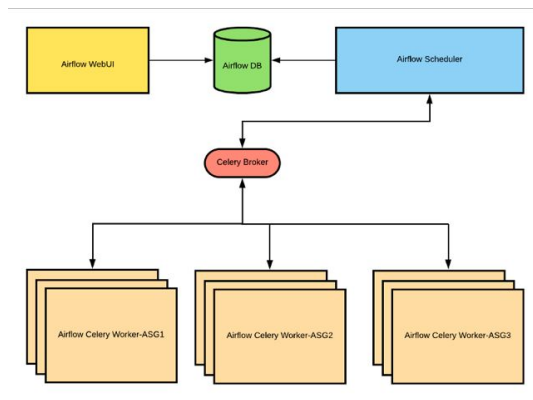


Generally (but far from always):

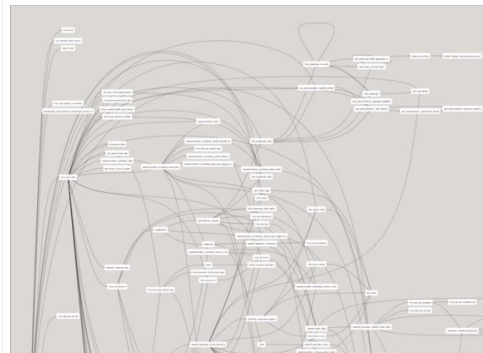
- **Data Scientists** are strongest in business knowledge, communication, machine learning and data wrangling
- **Data Engineers** are strongest in software engineering and database management
- **AI/MLE** are strongest in software engineering and building, optimizing and deploying scalable ML models

Data Engineering

- Build ETL (extract, transform, and load) pipelines to turn raw data into a database that can be queried
- Dealing with:
 - Volume
 - Velocity
 - Variety



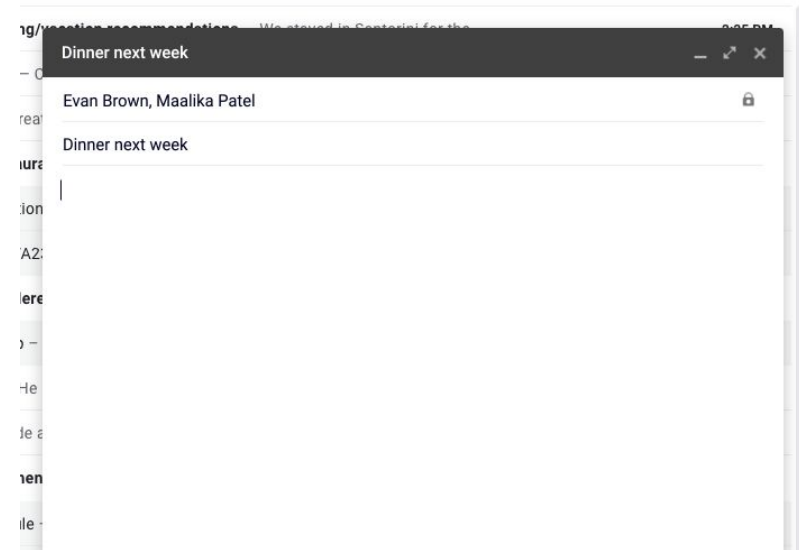
Managing interdependencies



Source: [Running Apache Airflow At Lyft](#)

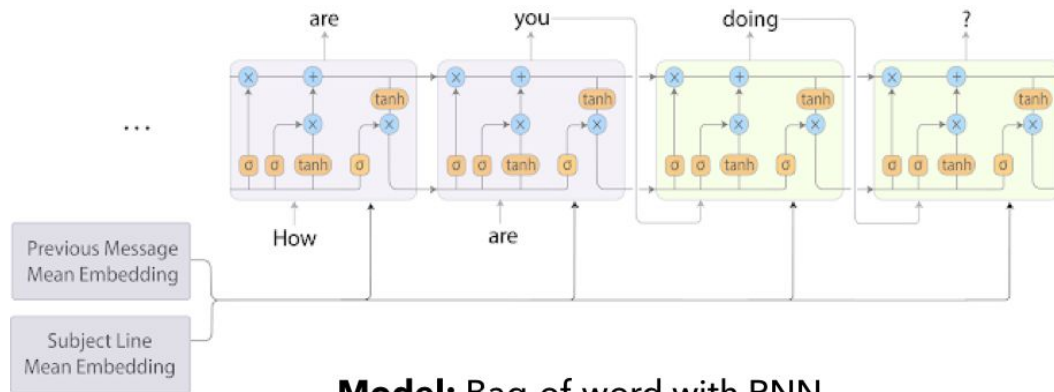
AI/ML

Google Smart Compose



Production-level issues to consider:

- **Latency:** <100 ms to be useful “Balancing model complexity and inference speed was a critical issue.
- **Scale:** +1.4B users. Need enough modeling capacity for tailored suggestions
- **Fairness and Privacy:** Make sure models don’t expose user’s private info



Model: Bag-of-words with RNN

Even within “Data Scientist” roles, there’s still significant variation

Who you collaborate with:

- Client-facing (e.g. Field Engineer)
- Internal-facing

Nature of the role:

- Research-oriented
- Analytics & Decision Science
- Product-focused

Potential skills emphasized (or not):

- Production-level code
- Deep Learning
- Specific methods/techniques (e.g. Computer Vision, Natural Language Processing, etc)
- Specific domain knowledge (e.g. genomics)
- SQL
- Business knowledge
- Communication

Data Science (Decision Science)

- **Dealing with:**
 - Analytics
 - Experimentation
 - Visualization
 - Data stories
- **Inform decisions** to save cost, redirect/optimize resources, test product features, etc

CIO JOURNAL

Merck Deploys AI For 'Self-Driving' Supply Chain

German firm to use sensors, machine learning to automate operations for its drugs and health products

M

freeCodeCamp (🔥)

DEV | LEARN TO CODE FOR FREE

How We Reduced Food Waste and Saved Money Using Machine Learning

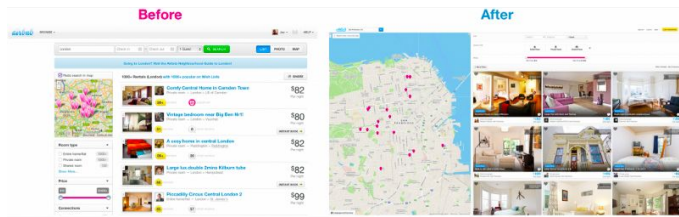


Soundarya Balasubramani

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Dec 28, 2018 · 6 min read

A/B Testing at AirBnB

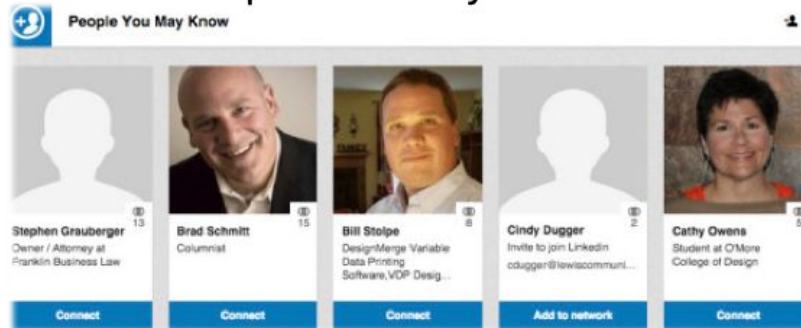


Source: [Experiments at AirBnb](#)

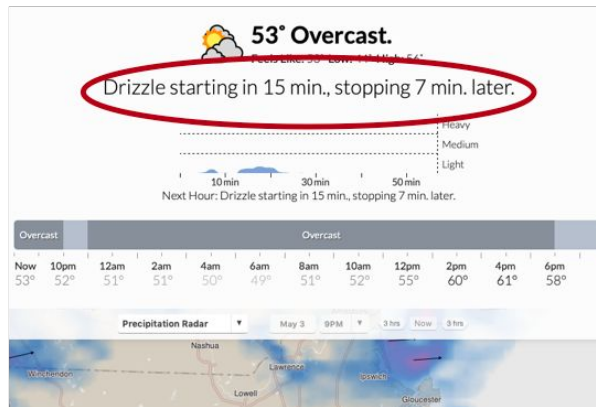
Data Science (Data Products)

- Data is the core of the product and the model output provides direct value to the user
- Role often focused much more on deploying a model than Analytics roles

LinkedIn's People You May Know recommender



DarkSky's Hyper-local weather predictor



Data Science

- ~ 50% of DS jobs are **Analytics & Decision Science:**
 - Communication & visualization
 - Business sense
 - General ML
 - Creativity
 - SQL
- ~30% of DS jobs are **Data Products:**
 - Production-level code
 - Product sense
 - Engineering skills
 - Maybe a little ML
- ~20% are **Specialized** (i.e. specific skills):
 - Deep Learning
 - Computer Vision
 - Image processing
 - Optimization
 - etc

Data careers by another name

UX Research

- Experimentation
- Surveys
- Focus groups
- Human-computer interaction
- Interviews

Human Factors

- Engineering / devices
- UX

Skills

Transferable Skills

Interacting with clients

Presenting

Collaborating with teams

Leading others

Organizing events

Written communications

Technical Skills (a sample)

Machine Learning: Classification, Regression, Clustering, Neural networks, NLP, Time series analysis

Languages: Python, Matlab, Bash, R, C, C++, Java, JavaScript, HTML, PHP, SQL

Libraries: Scipy, Pandas, Matplotlib, Scikit-learn, PyTorch, NumPy, TensorFlow, StatsModels, Git, AWS

Statistical Analysis: GLM, Bayesian modeling, multi-level modeling, A/B testing

Values

What is Important to you in work?

Work Life Balance

High Earnings

Being Challenged

Autonomy To Make Decisions

Working with Others

Working Independently

Travel

Variety of Projects

Working for Social Good

Taking Risks

Flexible Work Schedule

Office Location

Job Security

Small/Large Company (global corporation vs. startup)

Why is this important?

- No one is a perfect fit for literally every role
- Optimize how best to use your time when applying / considering different roles

Data science is everywhere

HEALTH

Memorial Sloan Kettering
Flatiron Health, ZocDoc

MEDIA

The New York Times
MTV, Netflix
Nielsen

SOCIAL

Facebook
Twitter
LinkedIn

FINANCE

Bloomberg
Capital One Labs
AmEx

ADVERTISING

Sailthru
Tapad
Dstillery

ENERGY

Bright Power
EnergyHub

TRAVEL

AirBnB
TripAdvisor

APPAREL

Rent the Runway
StitchFix
Bonobos

RETAIL

Etsy
Macy's
Birchbox

GOVERNMENT/NON-PROFIT

The City of NYC, The Census Bureau
DataKind, Murmuration

Industry example #1: News and Media

- Types of problems you might need to solve if you worked in the news and journalism space
 - What headlines do we show each user?
 - What pictures associated with stories should we show?
 - At what time of the day should new content be released?
 - What advertisements should be with which articles?

Industry example #2: E-commerce and Retail

- Types of problems you might need to solve if you worked in e-commerce



Industry example #3: Health

- Types of problems you might need to solve if you worked in health data



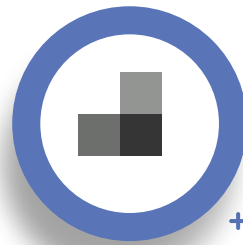
Job of a scientist

- Collect and clean data
- Use programming and statistics knowledge to discriminate between signal and noise
- Convey results to the scientific community

Job of a data scientist

- Collect and clean data
- Use programming and statistics knowledge to discriminate between signal and noise
- Convey results to the team/company/investors
- Make data-informed decisions that directly impact the product and ultimately the business

How do you get these jobs?



What evidence are companies looking for?

Product

Identify and translate high value problems into a data problem

Execution

Solve and validate their solution against problem-specific metrics.

Communication

Communicate their results back to stakeholders.

Product/Business Skills

- Do you know the problems that the industry is tackling?
 - Applying the relevant tools / techniques to relevant problems
- Understand how to apply the knowledge to industry problems
 - Reading industry / company blogs
 - Attending meetups
 - Knowing to ask the right questions / knowing the lingo

Technical Skills

- Experimentation / experimental design
- Statistics
- Programming (+ computer science + SQL)
- Machine learning

Knowing trade-offs of various approaches and being able to articulate them

Behavioral Skills

- Are you a strong communicator?
- How do you work with other people?
- Can you complete work on a tight deadline?
- How do you take the technical details and explain it to someone that doesn't work in your field?

Networking

- Know the right people to talk to
 - Hiring Managers
 - Technical Recruiters
- Know how to pitch yourself
 - Tailor a pitch for each role you apply to.
 - Use career fairs effectively, don't just drop in your resume.
- Meet the right people
 - Meetups
 - Hackathons
 - Fellowships/ Internships/ Bootcamps
- Know to have technical conversations (knowledge about the field will help here)

How can you showcase evidence of these skills?

- Technical
 - Work on side projects!
 - Solve a data problem that you or others are having
 - Use this solution to make an actionable difference
 - Put the code on github
- Communication
 - Write up your results and process (medium or other blog post)

Industry Resumes

- Use 1 full page and *no more*
- Minimum .5" margins on all sides
- Start with a blank page -- only include what's relevant to your next role
- Include a Header, Skills, Experience, and Education sections
- Start each bullet with a past-tense action verb
- Use consistent font style and size, indent, bullet size, date format, etc.

Writing Strong Bullets

Situation: Describe what you did (context, overview)

Action: Explain how you did it (the skills you used)

Result: Describe why you did it / why it mattered

What to consider when looking at companies

- Size of the company
 - From large corporation to startup
- What type of role are you interested in?
 - E.g. Where in the analytics < - - - - > engineering spectrum do you want to be?
 - Domain / area of interest
- Culture fit
- Mentorship

Interview Process

- Preparing a good resume to get a foot in the door
- A quick phone screen to get you started (behavioral or technical)
- Coding assignment
 - Timed Coding assignment (HackerRank, Leetcode)
 - Over the phone coding
 - Take home Data Challenges
- Onsite
 - 4-6 hours
 - Mix of Behavioural, Technical and data-oriented
 - Speak to multiple team members
 - Topics: Designing data platforms, Whiteboarding coding questions, Technical conversations

Most importantly, be open to rejection
and
learn from your mistakes

Insight Data Science

Transition to Careers in Data



**DATA
SCIENCE**



**DATA
ENGINEERING**



**HEALTH
DATA SCIENCE**



**ARTIFICIAL
INTELLIGENCE**



**DEVOPS
ENGINEERING**



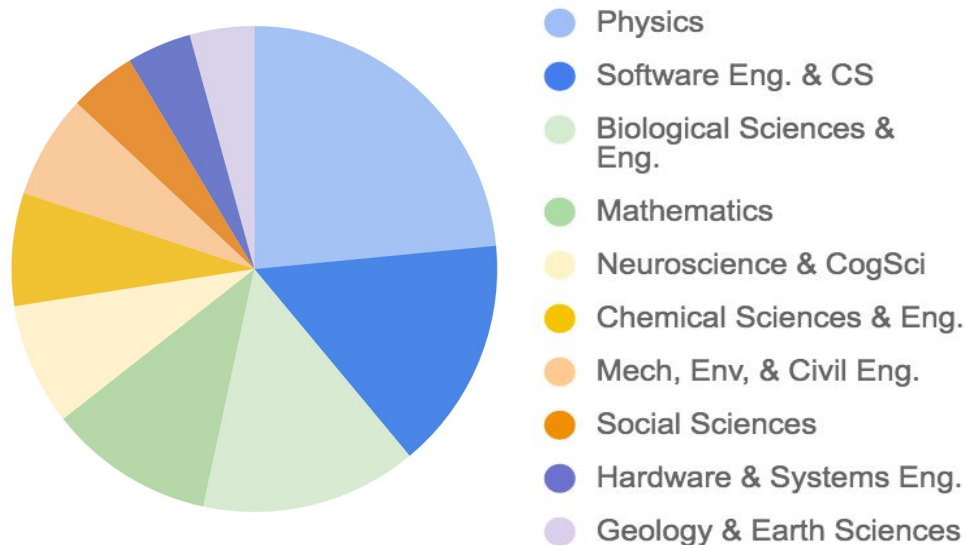
**DECENTRALIZED
CONSENSUS**



SECURITY

- Full-Time Programs
- Fully Remote Sessions
- Applicant Mentorship Available
- Scholarships Available
- No educational requirements for 5 of the 7 programs
- Fellows come from academia AND industry

Fellows come from a range of backgrounds:



Insight is committed to improving access to opportunities for traditionally underrepresented groups in tech. In addition to interventions to improve access to the Fellows Program, we're also working to provide an equitable experience where all Fellows feel a sense of belonging in the Insight Community. Here are a few ways we're making it happen:

Admissions

- Insight candidate mentorship program for underrepresented groups
- Insight & partner company sponsored scholarships available
- Learn more at: insightfellows.com/scholarships

Fellows Program

- DEI Summit, with lightning talks, panel discussions, and keynote speaker
- Data ethics & bias training
- Team dedicated to initiatives that improve the Fellow experience

...And Beyond

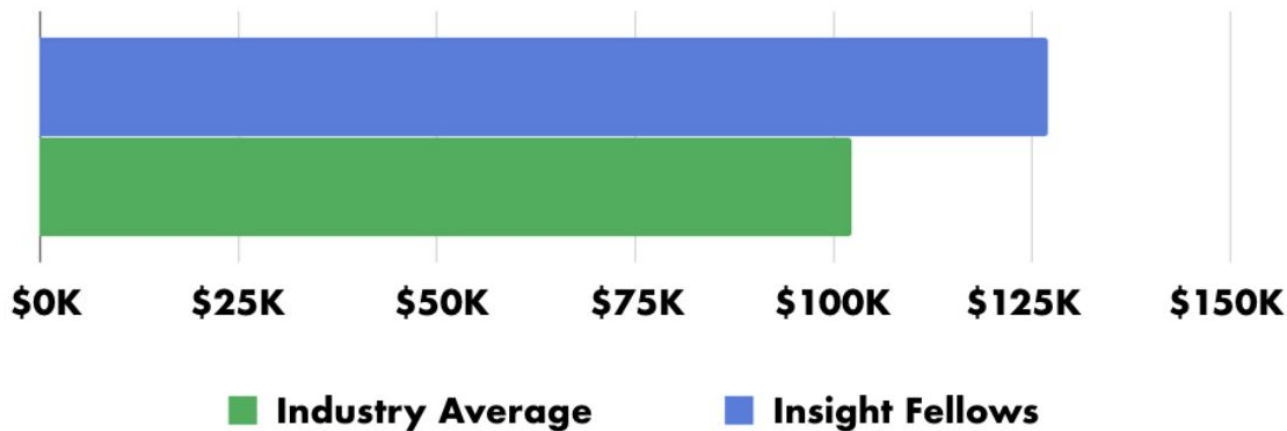
- Insight alumni provide mentorship to incoming Fellows
- Affinity groups to continue supporting the alumni community



Fellow Outcomes

Fellows **earn 24% more than industry standards**

Average Starting Base Salary





















In addition to an average base salary of \$127,363, Fellows receive an average bonus of \$11,200.

Source: Data reported from Fellows that completed Insight 2017-2019, compared to corresponding market data reported on Glassdoor in May 2020.



Fellows join top companies in advanced roles

Number of Insight Fellows who have joined each of our top 20 hiring companies

 107	 51	 50	 48	 38
 33	 33	 32	 30	 30
 30	 26	 24	 24	 19
 18	 16	 16	 15	 15



Project-based Learning

- WHY**
- Show teams your full potential
- WHAT**
- Learn skills in a cutting-edge area
 - Build your portfolio with highly-demanded technologies
- HOW**
- Actively learn by building
 - Gain hands on experience with guidance from industry experts



Company Visits & Demos

- WHY**
 - Meet the team members you'd work with
 - Present to the teams that fit you
- WHAT**
 - Over 38% of demos lead to an interview
 - **3x higher for Fellows** than traditional applications *
- HOW**
 - Get your foot in the door with the hiring manager
 - Guidance on presenting to hiring managers, and prep for each company

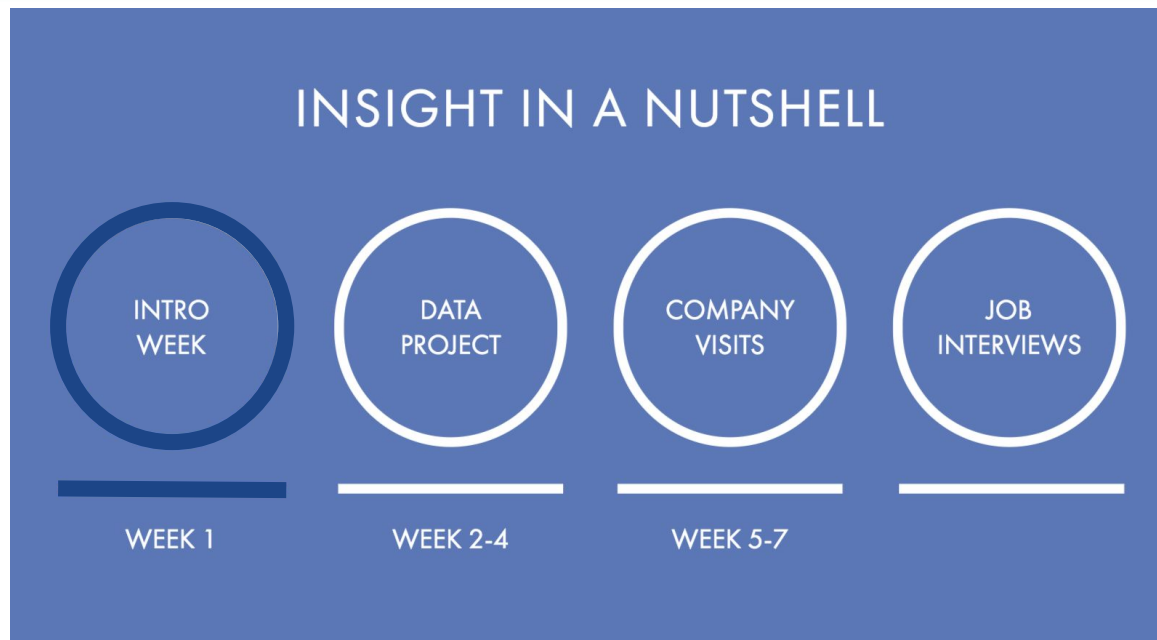
* Source: [Jobvite 2019 Recruiting Funnel Benchmark Report](#)



Interview Preparation & Coaching

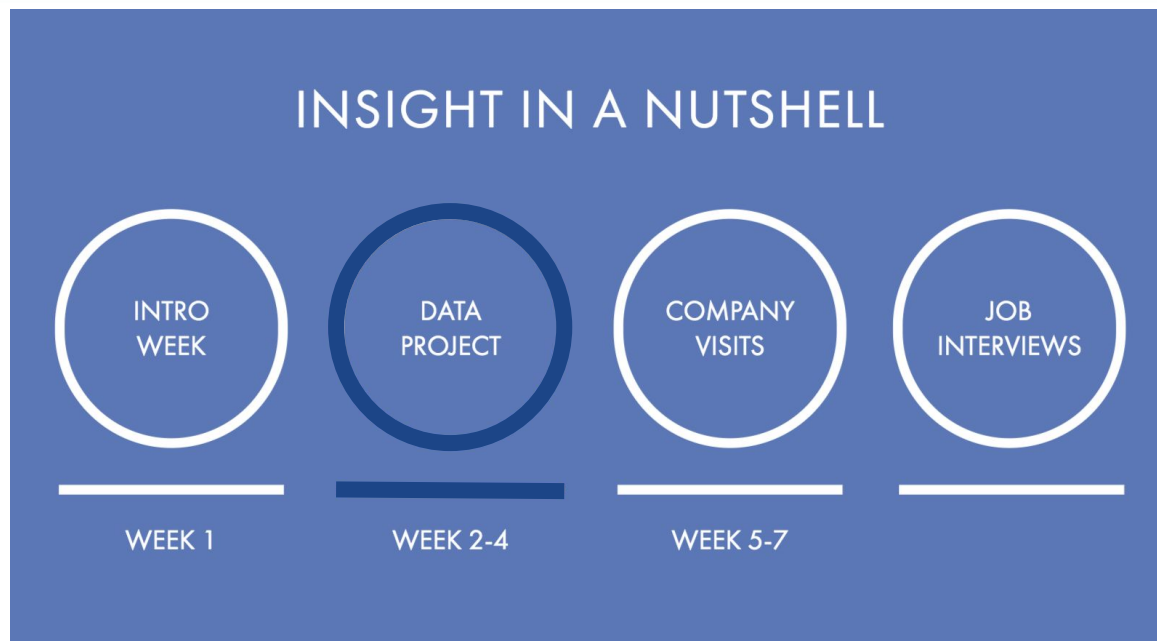
- WHY**
- Interviews naturally have noise
 - Interviews require deliberate and customized practice
- WHAT**
- Insight Fellows **get jobs 40% faster** with personalized support, with up to **24% higher salaries** than comparable professionals
- HOW**
- Personalized preparation for your interviews
 - One-on-one mock interviews for each company to help you show the relevant skills
 - Negotiation support for offers





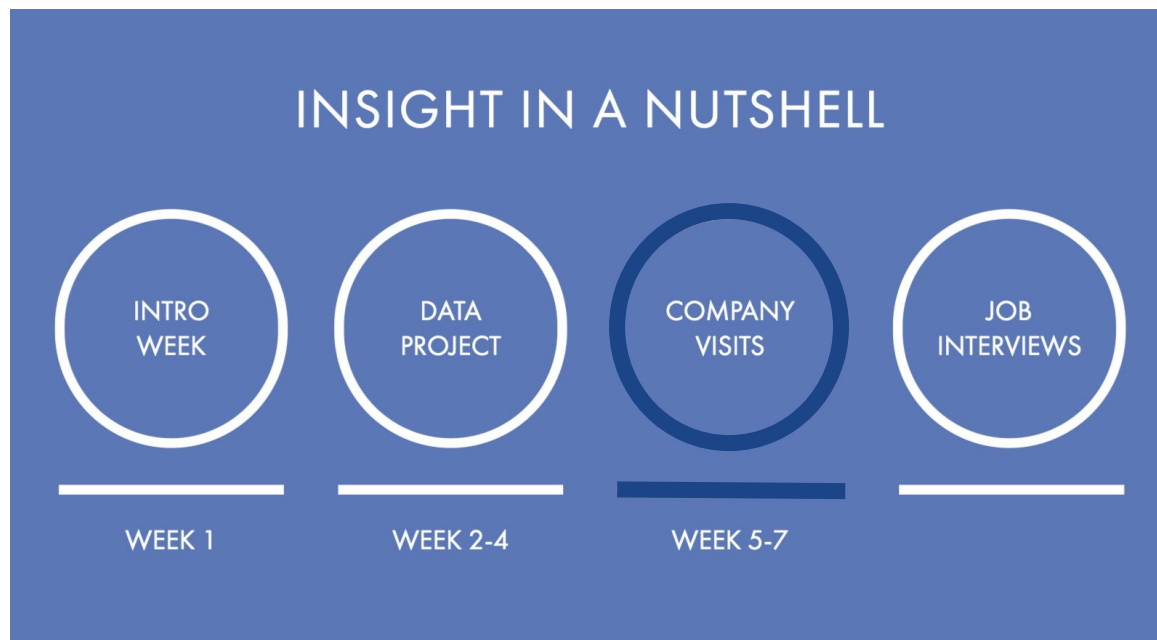
- Introduction to program and high-level concepts in the field
- Select a project and set up cloud computing environment





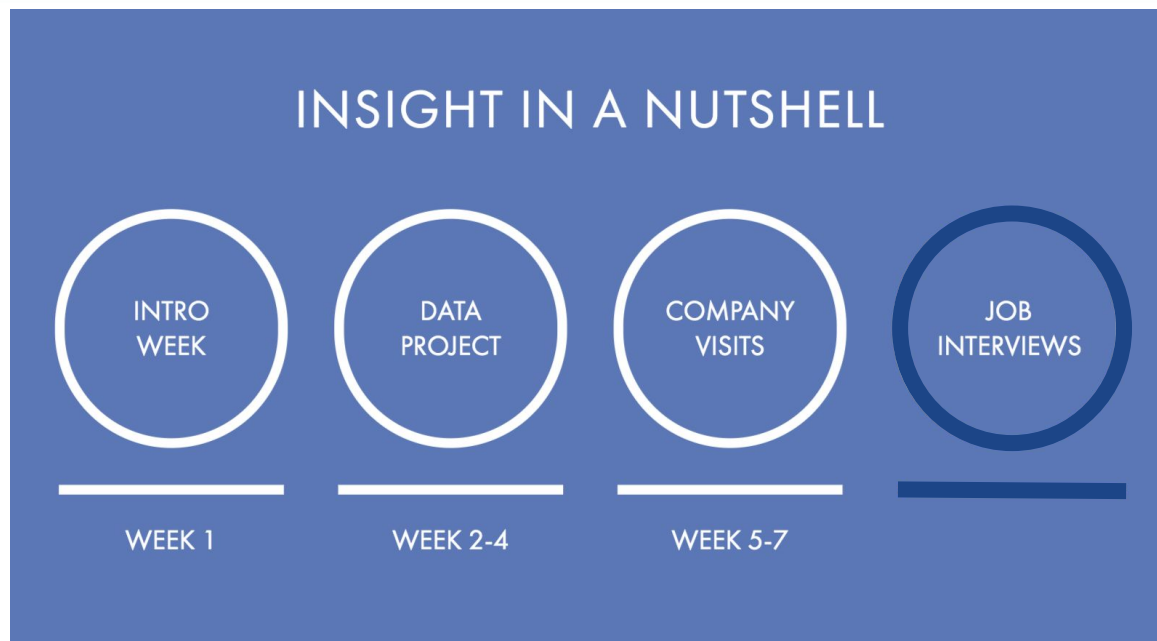
- Fellows work on their projects
- Hiring managers from Insight's partner companies visit and meet with Fellows, chat about team, culture, values, open roles, desired skills and experiences





- Present completed projects to hiring companies
- Mock interviews and help each other prepare for interviews.



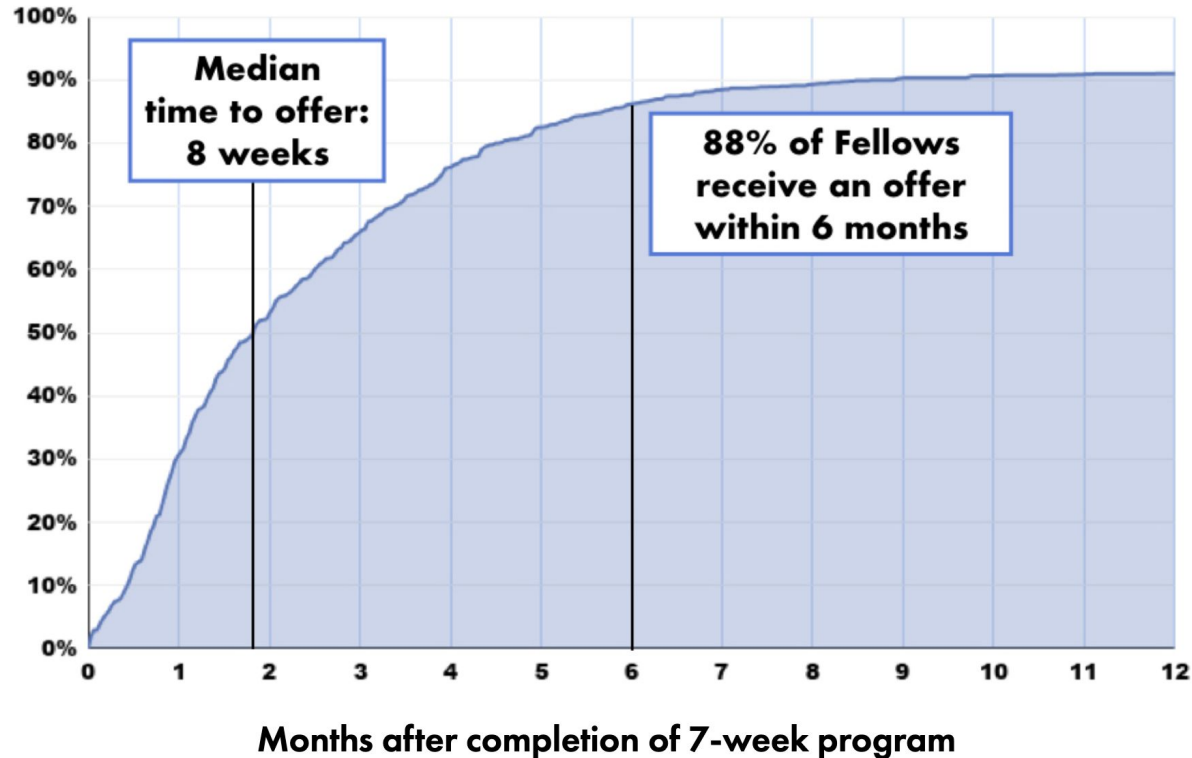


- Begin interviewing with companies, with personalized preparation
- Introductions to new companies continue through demos and resumes



Structure of the Program: Receiving offers

Percent of Fellows that receive offer in relevant field



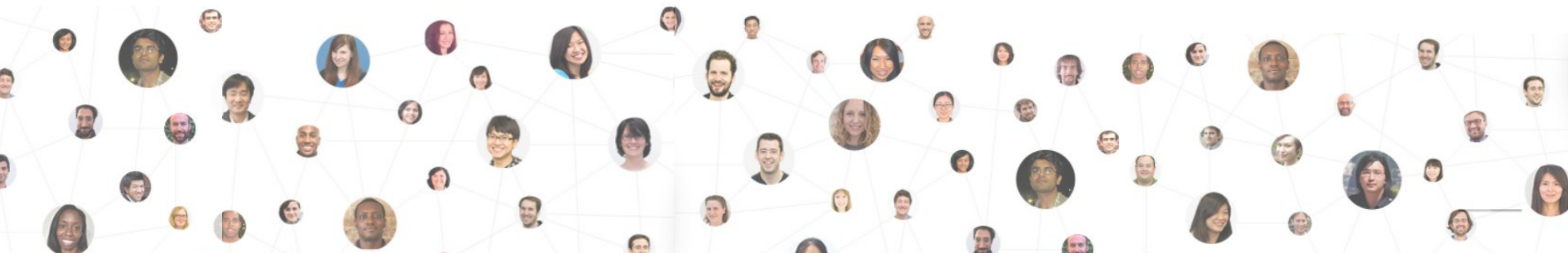
Source: Date of accepted offer reported by Fellows that joined Insight during 2017-2019



3500+
DATA
SCIENTISTS &
ENGINEERS

Successful Fellows create a lifelong network

- Past Fellows mentor new Fellows, just as the previous Fellows did for them
- The Fellow community accelerates learning through participation on our exclusive knowledge platform
- Deferred membership dues enable the program for future Fellows



When you become a Fellow, Insight makes a guarantee to you with three components:

\$100K+ SALARY

You accept an offer for a position that earns at least \$100,000 USD annually.

WITHIN 6 MONTHS

You accept an offer dated within 6 months of the end date of the 7-week training program.

IN A RELEVANT FIELD

You accept an offer within a field **relevant** to the programs offered by Insight.

Fellows receive the full membership benefits for the remainder of their careers, even if their financial commitment is waived as a result of the guarantee not being satisfied.





Upcoming Application Deadline

To apply, visit:

apply.insightfellows.com

Next application deadline:

Monday, October 12

Next session begins:

Tuesday, January 19, 2021





Want to learn more?

Visit: insightfellows.com



Questions?

Email us at: info@insightfellows.com



How to contact me

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