



# INSIGHT



## DATA SCIENCE FELLOWS PROGRAM



**Insight Data Science Fellows Program** is a postdoctoral training fellowship that bridges the gap between academia and a career in data science. Based in Silicon Valley, New York City, Boston, Seattle, Toronto, and Los Angeles, as well as a growing network across North America, the program enables scientists to learn industry-specific skills needed to work in the growing field of big data at leading companies.

## Your Bridge to a Career in Data Science

Are you a PhD candidate or postdoctoral researcher looking to transition into a career in-industry? Do you want a career that truly leverages your quantitative experience in a fast-growing, in-demand field that is making a positive impact in the world?

Top companies in many fields are hiring data scientists to help them glean insights from the terabytes of data that they collect everyday. While the amount of data produced and stored is growing exponentially, there is a severe shortage of talent to analyze this data and extract valuable insights from it.

The Insight Data Science Fellows Program is a postdoctoral training fellowship that bridges the gap between academia and data science. Throughout this seven week intensive program, researchers learn how to apply their existing analytical skills to big data. The program consists of a project-based, industry-driven learning approach designed to train academics in many of the cutting edge data science tools and practices used in-industry. Immediately following the program, Fellows interview at leading companies in the San Francisco Bay Area (Silicon Valley program), New York City (New York program), Greater Boston Area (Boston program), Seattle (Seattle program), Toronto (Toronto program), Los Angeles (LA program), or at companies across North America including Chicago, Austin, Denver/Boulder, Atlanta, and many Midwest cities (remote program).



### Insight Data Science Fellowship in a Nutshell:

1. 7 week, full-time, postdoctoral data science training in San Francisco, New York City, Boston, Seattle, Toronto, Los Angeles, or remote.
2. Tuition-free program, with need-based scholarships and loans to help cover living expenses.
3. Self-directed, project-based learning (*no classes!*) under the guidance of top industry data scientists.
4. A group of smart people who are excited about working on interesting problems while having a positive impact.
5. Interview at top companies immediately following the program.

## What is Data Science?

The amount of data produced across the globe has been increasing exponentially and will continue to grow at an accelerating rate for the foreseeable future. At companies across all industries, servers are overflowing with usage logs, message streams, transaction records, sensor data, business operations records and mobile device data. Effectively analyzing these huge collections of data can create significant value for the world economy by enhancing productivity, increasing efficiency and delivering more value to consumers. Studies estimate that trillions of dollars of value in efficiency improvements and economic growth can be unlocked by extracting actionable knowledge from the deluge of data now being collected in almost every sector of the economy.<sup>1</sup>

“We are on the cusp of a tremendous wave of innovation, productivity, and growth, as well as new modes of competition and value capture—all driven by big data as consumers, companies, and economic sectors exploit its potential,” write the authors of *Big Data: The Next Frontier for Innovation, Competition, and Productivity*, a comprehensive research study published in 2011 by the McKinsey Global Institute.

Nowhere has the benefit of analyzing data been felt more strongly than at top technology companies. Insight was founded in Silicon Valley, where companies are not only leading in the production of data, they are also on the cutting edge of using insights from that data to benefit their users. In fact, the role of data scientist, now used throughout industry to describe highly specialized analysts with deep quantitative abilities, was coined by the heads of the early data teams at Facebook and LinkedIn. They realized that the process of asking questions about product use cases, taking measurements, verifying hypotheses and building upon those results closely mirrored the process by which science is done. The individuals, therefore, who apply their curiosity, quantitative skills and intellect toward understanding big data are now known as data scientists - a job title that is one of the most in-demand job roles at today’s leading companies.<sup>2</sup>

## How Large is the Demand for Data Scientists?

Fortune<sup>3</sup> magazine has called data science “the new hot gig in tech,” writing, “the unemployment rate in the U.S. continues to be abysmal, but the tech world has spawned a new kind of highly skilled, nerdy-cool job that companies are scrambling to fill: data scientist.” NPR<sup>4</sup> reported that

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<sup>1</sup> McKinsey Global Institute, *Big data: The next frontier for innovation, competition, and productivity*

<sup>2</sup> Fortune, *Big Data Needs Data Scientists* (2012); New York Times, *What Are The Odds That Stats Would Be This Popular?* (2012)

<sup>3</sup> Fortune, *Data Scientist: The Hot New Gig in Tech* (2011)

<sup>4</sup> NPR, *The Search for Analysts to Make Sense of ‘Big Data’* (2011)

companies are “on a perpetual manhunt, looking for a rare breed: someone with a brain for math, finesse with computers, the eyes of an artist and more.”

### “Data Science” Job Postings on indeed.com



Meanwhile, in a Harvard Business Review feature article entitled *Data Scientist: The Sexiest Job of the 21st Century*, in which Insight is mentioned, the authors point out that, “demand [for data scientists] has raced ahead of supply. Indeed, the shortage of data scientists is becoming a serious constraint in some sectors.”

Job posting data paints a similar picture, with data science and analytics job openings growing sharply over the past several years<sup>5</sup> (see graph above). This demand will continue to be very strong in years to come, as the McKinsey Global Institute<sup>6</sup> estimates that the “United States alone faces a shortage of 140,000 to 190,000 people [by 2018] with deep analytical skills” to analyze big data across all industries -- that’s a shortfall over and above the estimated number of graduates from existing university programs (see graph below).

<sup>5</sup> DJ Patil, *Building Data Science Teams* (2011)

<sup>6</sup> McKinsey Global Institute, *Big data: The Next frontier for innovation, competition, and productivity*

## Who are the Best Data Scientists?

“There continues to be a huge appetite on the part of businesses to find the treasure in large, unstructured datasets, and a widespread understanding that not just anyone can do it.”<sup>7</sup>

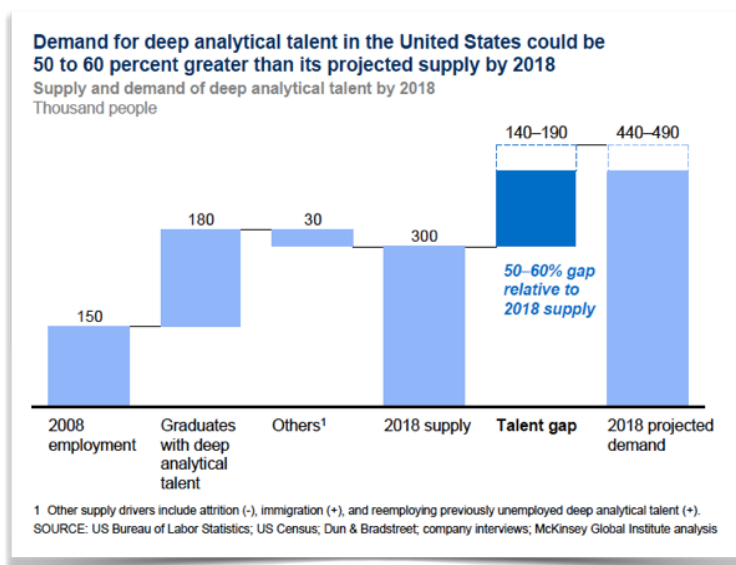
— DJ Patil

Who are the best data scientists? According to DJ Patil, the former Chief Scientist at LinkedIn who co-coined the term *data scientist* and an Insight mentor and advisor, “the best data scientists tend to be ‘hard scientists, particularly physicists, rather than computer science majors. Physicists have a strong mathematical background, computing skills, and come from a discipline in which survival depends on getting the most from the data. They have to think about

the big picture, the big problem.”<sup>8</sup> The same applies for any scientist whose work is highly quantitative, or who writes code or analyzes data, including PhDs in astronomy, astrophysics, physical chemistry, computational biology, and neuroscience, as well as researchers in mathematics, statistics, engineering, machine learning, operations research, economics, quantitative social sciences and other data-heavy fields.

While scientists make great data scientists, those currently in the industry often take a long and winding road to get there, learning the tools

used in big data informally over long periods of time and through chance encounters with the profession. While serendipity is certainly a good way for people to discover a field in its infancy, as it matures and as demand grows, there needs to be a more direct and efficient route into the profession. This is where the Insight Data Science Fellows Program comes in, and why data scientists at some of the top companies in North America are helping Insight develop the next generation of leading data scientists.



<sup>7</sup> Harvard Business Review Blog, *Still the Sexiest Profession Alive* (2013)

<sup>8</sup> O'Reilly Radar, *Big Data Now: Current Perspectives from O'Reilly Radar* (2011); DJ Patil, *Building data science teams* (2011)

# Insight Data Science Fellows Program

As a scientist, you possess many of the fundamental skills necessary to be a great data scientist: big picture problem solving, strong quantitative abilities and experience with statistical analysis. While you have 90% of the foundational skills needed, you are missing the final 10%: experience with the industry data tools and techniques that would allow you to be productive on day one of your new job as a data scientist. Because they are expanding so quickly, most high-growth companies simply do not have the resources to ‘take a chance’ on someone who still needs several weeks of on-the-job training to be a productive part of the team. As a result, there is a skills gap that exists between the world of academic research and data science.

That’s where Insight comes in. We accept top PhDs and postdocs and provide them with the time, space and resources necessary to get up to speed on the tools, techniques and models they will need to learn to get hired as data scientists and hit the ground running in their new careers.

Here’s what you need to know about the Insight Data Science Fellows Program in a nutshell:

1. 7 week, full-time postdoctoral data science training fellowship.
2. Tuition-free for all Fellows, with needs-based travel and living expense scholarships and loans available.
3. Self-directed, project-based learning (*no classes!*) under the guidance of top industry data scientists.
4. Network with smart people who are excited about working on interesting problems while having a positive impact.
5. Interview and get hired at mentor companies immediately following completion of the program.

## Who’s Involved?

Insight is an education startup working to bridge the gap between academia and the technology industry. With seed funding from startup investment funds **Y Combinator**, **SV Angel**, **Avalon Ventures**, **Initialized**, and **Data Collective**, with participation from leading technology companies, we are connecting top analytical talent with some of the most innovative companies in the world. Mentors for the Insight Data Science Fellows Program, who hire out of the program, are data scientists and engineers from:



## How does it work?

The Insight Data Science Fellows Program is a full-time, 7 week postdoctoral fellowship based in the San Francisco Bay Area, New York City, Boston, Seattle, Toronto and LA that helps scientists transition from academia to a career in data science. A remote program is also available to help scientists seeking data science careers in other cities like Chicago, Austin, Denver/Boulder, Atlanta and many Midwest cities. As an Insight Fellow, the program is completely tuition-free. Office space is also included for the duration of the in-person programs, and we help international students handle any necessary visa arrangements. Finally, need-based living expense scholarships and loans are available.

“ The Insight Data Science Fellows Program... takes scientists from academia and in six weeks prepares them to succeed as data scientists. The program combines mentoring by data experts from local companies (such as Facebook, Twitter, Google, and LinkedIn) with exposure to actual big data challenges. ”



Data Scientist:  
The Sexiest Job of the 21st Century  
Harvard Business Review, October 2012

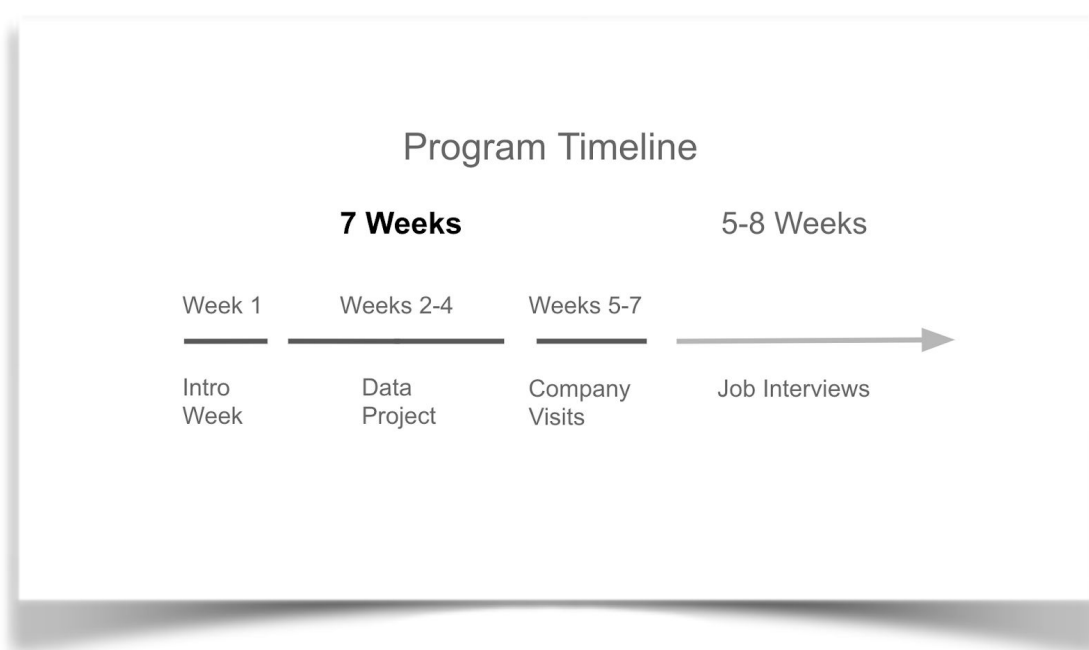
During the first week of the program, you are introduced to the field of data science and participate in round-table discussions with leading industry data scientists from mentoring

companies, learning about the tools, techniques and best practices for doing data science while brainstorming possible data projects. By the end of the first week, with the input of mentors and peers, you select a public data set and project topic to handle in the subsequent weeks.

Over those next 3 weeks, you work on your project, learning the necessary technologies and techniques that you need to create a data product that will showcase your skills as a data scientist. In weeks 5 through 7, you prepare for interviews while demoing your project to the various mentoring companies where you're interested in interviewing. Immediately following the end of the program, you will interview with companies that you are interested in. After completing all interviews, 5-8 weeks after the end of Insight, you should have one or more job offers from top companies and be ready to start your career as a data scientist.

## Program Details

The Insight Data Science Fellows Program is a 7 week, full-time program that consists of the following:



**Intro to Data Science** During the first week of Insight, top industry data scientists will have round table discussions and lead you through the foundational concepts of data science, giving you a big-picture overview of what the field is about, and what makes a great data scientist. You will also discuss the types of projects you should consider doing in order to make the most of your time at Insight. Heads of data science teams from Facebook, LinkedIn, Square, Netflix, and other top companies will make visits during this portion of the program. By the end of the week, with input from peers and mentors, you will select the data project to work on in the following weeks.



**Data Project** In weeks 2, 3 and 4, you'll work exclusively on executing on your data project. The purpose of the project is meant to showcase your existing data analysis skills in a context that companies are familiar with (i.e. using web data, instead of, say, experimental data) while forcing you to learn the technical skills and technologies that are standard in-industry, but that you may not have been exposed to during your work in academia. These skills may include:

1. **Software Engineering Best Practices:** Learn how to contribute to a large code-base and instrument a web application to collect data. *Tools you may learn: Python, Git, Flask, Javascript.*
2. **Storing and Retrieving Data:** How to clean data, store it in the appropriate database or distributed data storage system and then run queries to retrieve the information needed for analysis. *Tools you may learn: MySQL, Hadoop, Hive.*
3. **Statistical Analysis & Machine Learning:** Learn industry best practices for doing basic and advanced statistical analysis on large data sets. *Tools you may learn: NumPy & SciPy, Pandas, scikit-learn, R.*
4. **Visualizing and Communicating Results:** Learn how to effectively communicate your findings visually and verbally. *Tools you may learn: D3 Javascript library, visualization and presentation best practices.*

Throughout Insight, there are no grades or other arbitrary proxies used to evaluate your work. Instead, your data analysis project will serve as your “professional portfolio,” which you will be able to show to potential employers in order to demonstrate your understanding and proficiency in the subjects tackled.

**Collaborative Learning** While your work will be self-directed, you are never left alone to fend for yourself. Your peers are there to assist you, and Insight alumni (now working data scientists) and industry mentors are on-hand daily to discuss difficult-to-understand concepts or to help fix bugs. Group discussions and Q&A sessions will also be a regular part of the program, along with an informal collaborative, peer-learning culture being encouraged at all times.

**Mentors** Throughout the program, you will be interacting on a daily basis with Insight mentors, all of whom are leading data scientists, software engineers and managers from industry (see list below). These are the people who work at the very same companies that you will have the opportunity to interview with at the end of the program. This means that you will not only learn about the cutting-edge techniques being used at these companies, but you will also get to know the actual practitioners themselves who are actively working in the field. As a result, you will develop professional relationships with more than one to two dozen data scientists. This is an invaluable professional network that you will be able to draw on throughout your career.

**Insight Data Science Mentors**

Manager of Data Science, **A9**  
Founder & CEO, **AeroFS**  
Head of Analytics, **Airbnb**  
Founder & CEO, **Alluvium**  
Data Scientists, **AT&T Big Data**  
Assistant VP, **AT&T Labs-Research**  
CEO (USA), **Axon Vibe**  
Director of Data Science, **BitSight**  
Managing Director, **BlackRock**  
Manager of Data Sciences, **Bloomberg**  
VP Data Science, **BNY Mellon**  
VP, Data Science, **Bosch**  
Chief Data Officer, **Broad Institute**  
Head of Product, **Clearslide**  
Founder & CEO, **Comprehend**  
Co-Founder, **Custora**  
Lead Software Engineer, **Dstillery**  
Chief Data Officer, **Earnest**  
VP & Directors of Data Science, **Facebook**  
Founder & CEO, **Fast Forward Labs**  
Sr. Director Data Science, **Glassdoor**  
Directors of Data Science, **Intuit**  
VP of Data, **Jawbone**  
Head of Analytics, **Khan Academy**  
VP & Directors of Data Science, **LinkedIn**  
Founder & CTO, **LendUp**

Chief Analytics Officer, **Memorial Sloan-Kettering**  
Director of Data Science, **Netflix**  
Chief Data Scientist, **The New York Times**  
Chief Data Scientist, **News Corp**  
Director of Engineering, **OkCupid.com**  
Co-Founder, **Opendoor**  
Director of Data Science, **Oscar Health**  
Data Scientist, Business Development, **Palantir**  
Founders, **Premise**  
Head of Data, **Reddit**  
Co-founder, **Remind**  
Lead Engineer, **SalesforceIQ**  
Lead Machine Learning Engineer, **Spotify**  
Director of Analytics & Risk, **Square**  
Head of Data, **Stitch Fix**  
Co-founder, **Tamr**  
Director of Science, **Twitch**  
Data Science Lead, **Twitter**  
Head of Data Science, **Uber**  
Executive Vice President, Data Strategy, **Viacom**  
Director, Data Science, **Wayfair**  
Founder & CEO, **WePay**  
Partner, **Y Combinator**  
Heads of Analytics, **Yammer (Microsoft)**  
Engineering Manager, **Yelp**  
Director of Data Science, **ZocDoc**

**Practice Interviews with Alumni** In addition to the project work and collaborative learning, you will get a chance to complete practice interviews to prepare for the real thing. The practice interviews will be led by Insight Fellow alumni who recently went through the interview process themselves and know what it feels like to be in your shoes. These mock interviews will also allow you to practice clearly articulating the insights gleaned from the analysis work you've done, a skill which is an extremely important part of being a great data scientist.

**Company Visits & Matching** Starting in week 5, you will have the opportunity to visit the offices of the companies you're interested in interviewing with and present your project to their data science teams. While this phase of the program has traditionally lasted through Weeks 5 and 6, we have recently seen so much demand for Fellows from companies that the project presentations and company visits have begun to spill into Week 7. Throughout the program, you will have interacted with mentors who are practicing data scientists, and you will have learned about which companies you are most interested in and would like to present to. Most Fellows go to visits and present at 6-10 companies that they are most excited about. The companies then reach out to those Fellows whom they feel would be a good fit for their teams and schedule full interviews.

**Interviews** Starting in week 8, you will begin the interview process with the companies that have reached out to you as a result of your Insight project presentations in the previous week. Most Fellows interview with anywhere from 4-8 companies. While the interview process *starts* in week 8, it usually continues for several additional weeks, with most Fellows receiving offers

5-8 weeks after the start of interviews. When all is said and done, you will most likely have an accepted job offer and a convenient start date arranged at your new job as a data scientist.

## The Insight Fellows

The Insight Data Science Fellows Program inaugural session took place in June 2012 in Silicon Valley. In Summer 2014, the program expanded to New York City and we also launched the Data Engineering Fellows Program in Silicon Valley. In 2015, the Data Engineering program expanded to New York, we launched the Health Data Science Fellows Program in Boston, and rolled-out a remote Data Science Fellows Program to connect Fellows with opportunities across the US in cities like Chicago, Austin, Denver/Boulder, Atlanta and many Midwest cities. Insight has continued to expand, with the launch of the Health Data Science Fellows Program in Silicon Valley in 2016, the Data Science program in Boston in June 2017, the Data Science program in Seattle in July 2017, the Data Science program in Toronto in September 2018 and the Data Science program in Los Angeles in September 2019.

The Insight Data Science Fellows are PhDs and Postdocs from fields as varied as physics, math, astrophysics, engineering, statistics, psychology, operations research, neuroscience and other fields. During Insight, they produce a number of exciting web-based data products or collaborate with growing startups and larger companies to develop recommendation engines, data visualization tools, and predictive analytics algorithms. These products tackle challenging problems with data-driven solutions.

The goal for the program has always been to accept top scientists and provide them with the resources they need to become data scientists at innovative companies. Thanks to the hard work of the Fellows, and the help of our industry mentors, the program has been a resounding success. There are now **2000 Insight Fellows working as data scientists and engineers across North America**. The vast majority of Fellows who have stuck with the post-Insight job search process have found work in a data-related role within 3-4 months of completing the program, with a majority of Fellows getting one or more offers from Insight mentor companies within 4-6 weeks immediately following the program.

Insight Fellows are now working as data scientists at top data-driven companies including Facebook, LinkedIn, Apple, Microsoft, Square, Netflix, Twitter, Palantir, Airbnb, Uber, Intuit, Amazon, Yelp, Stitch Fix, Memorial Sloan Kettering Cancer Center, Bloomberg, Dow Jones, New York Times, Wayfair, Dstillery, Akamai, Zocdoc, MTV, NBC, and many more. Fellows now have titles such as Data Scientist, Analytics Engineer and Software Engineer, with the majority of starting base salaries falling in the \$100,000-\$150,000 range.

Read more about the Fellows at: [insightdatascience.com/fellows.html](https://insightdatascience.com/fellows.html)

## Insight Program Locations

**Silicon Valley** The Insight Data Science Fellows Program launched in Palo Alto, CA in 2012 and moved to San Francisco, CA in 2018. It continues to help Fellows begin careers in the thriving data science ecosystem of Silicon Valley. Mentor/hiring companies involved in the Silicon Valley program include: Facebook, LinkedIn, Twitter, Airbnb, Uber, Microsoft, Apple, Netflix, Stitch Fix, Square and many high growth startups.

**New York City** In the summer of 2014, Insight expanded to include a New York City location to support the rapid growth of data science in New York. New York mentor/hiring companies involved in the East Coast program include: The New York Times, Bloomberg, Memorial Sloan Kettering Cancer Center, Wall Street Journal, Spotify, Palantir, Capital One Labs, AT&T, Verizon, NBC Universal, Oscar Health, MTV, Wink, Foursquare, Birchbox and various startups.

**Boston** Insight began offering a Boston location in the summer of 2017 to meet the growing demand for data science in Boston and Cambridge. Mentor/hiring companies for the Boston program include: Amazon Alexa, Wayfair, Akamai, Microsoft, Thomson Reuters, Schireson Associates, and high growth startups such as Tamr and Cinch Financial.

**Seattle** The inaugural session of the Insight Data Science Program in Seattle began in July 2017 to bridge the gap between academia and careers in data science in the Seattle area. As we have grown the Insight community in Seattle, which began as a remote program (see below), we have seen an increasing demand for data scientists in a variety of industries. Fellows will be meeting hiring managers and teams from mentor companies including Facebook, Amazon, Microsoft, Lyft, non-profit like Fred Hutch Cancer Research Institute, Sage Bionetworks and start-ups such as ispot.tv and Zymergen.

**Toronto** The first international session of the Insight Data Science Program began in September 2018 to support the diverse and fast-growing data science community in Toronto. Mentor/hiring companies involved in the Toronto program include: The Globe and Mail, Royal Bank of Canada, Scotiabank, CIBC, Loblaw Digital, Shopify and Thomson Reuters.

**Los Angeles** The first session of Insight in Southern California will take place in LA beginning September 2019. The rapid growth of data science opportunities in LA we've seen in our remote program (see below) and the thriving careers of our LA-based alumni have mirrored the expansion of aerospace, finance, media, e-commerce, VR/AR, and other data-driven industries in Southern California. Fellows will meet with teams from mentor companies including Netflix, Intuit, BGC, and start-ups including Steady, Thrive Market, and VideoAmp all across LA.

**Remote Program (Chicago, Austin, Denver/Boulder, Atlanta, and other Midwest cities)** In the summer of 2015, Insight expanded to include a full-time remote program designed to help PhDs looking for careers as data scientists outside of Silicon Valley, New York City, Boston, Seattle, Toronto, or Los Angeles. This program is designed for Fellows who are

open to moving to a new city to begin their data science careers. During the program, Fellows interact remotely with mentor/hiring companies such as: Apple, 3M, Nielsen, CVS Health, Carmax, and other teams in a wide range of industries.

All sessions have the same seven week format. If you are interested in living and working in Silicon Valley, New York City, Boston, Seattle, Toronto or Los Angeles, please submit your application for the in-person location of your choice. If you would prefer to begin your data science career outside of these cities, please submit your application for the remote program.