Insight is an intensive, seven week postdoctoral training fellowship that bridges the gap between academia and a career in data science. Based in Silicon Valley and New York City, the program enables scientists to learn the 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. Insight is a seven week, intensive program that teaches researchers 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) or New York and Boston regions (New York Program), where they are likely to receive multiple job offers.

Insight in a nutshell:

1. 7 week, full-time, postdoctoral data science training fellowship in Silicon Valley or New York City.
2. Full tuition scholarship for all Fellows.
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.

“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.

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1 McKinsey Global Institute, Big data: The next frontier for innovation, competition, and productivity
2 Fortune, Big Data Needs Data Scientists (2012); New York Times, What Are The Odds That Stats Would Be This Popular? (2012)
How Large is the Demand for Data Scientists?

Fortune\textsuperscript{3} 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\textsuperscript{4} reported that 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.”

Meanwhile, in a Harvard Business Review feature article entitled \textit{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\textsuperscript{5} (see graph on the left). This demand will continue to be very strong in years to come, as the McKinsey Global Institute estimates\textsuperscript{6} 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 figure on next page).

\textsuperscript{3} Fortune, \textit{Data Scientist: The Hot New Gig in Tech} (2011)
\textsuperscript{4} NPR, \textit{The Search for Analysts to Make Sense of ‘Big Data’} (2011)
\textsuperscript{5} DJ Patil, \textit{Building Data Science Teams} (2011)
\textsuperscript{6} McKinsey Global Institute, \textit{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.” — 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.” The same applies for any scientist whose work is highly quantitative, 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 a demand grows there needs to 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 the U.S. are helping Insight develop the next generation of leading data scientists.

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 come in and 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 a data scientist and hit the ground running in their new career.

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 in Silicon Valley or New York City.
2. Full tuition scholarship for all Fellows, with need-based travel and living expense scholarships 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\(^9\) and SV Angel\(^{10}\) and, 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 including:

9 \(http://ycombinator.com\)
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 and New York City that helps scientists transition from academia to a career in data science. As an Insight Fellow you will receive a full tuition scholarship, making the program completely tuition free. Office space is also included for the duration of the program and we help international students handle any necessary visa arrangements. Finally, need-based living expense scholarships 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."

Harvard Business Review

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 the 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 demo’ing your project to the various mentoring companies that you’re interested in interviewing with. Immediately after the end of the program, you will interview with companies that you are interested in working for. After completing all the interviews, 4-8 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 discussion 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 that 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 the peers and mentors, you will select the data project that you will work on in 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.
Practice Interviews with Alumni  In addition to the project work and collaborative learning, you will get a chance to do practice interviews to prepare for the real thing. The practice interviews will be led by alumni Insight Fellows 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 get an 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 visit 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 another several weeks, with most Fellows receiving offers 4-8 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.

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**The Insight Fellows**

The Insight Data Science Fellows Program inaugural session took place in June 2012. Since then we have completed three sessions per year in Silicon Valley, and ran the first New York City session in the Summer of 2014 and added a Data Engineering Program in Silicon Valley.

The Insight Data Science Fellows are PhDs and Postdocs from fields as varied as physics, math, astrophysics, engineering, statistics, psychology, operations research, neuroscience and others fields. During Insight, they produced a number of exciting web-based data products including recommendation engines, data visualization tools, predictive analytics algorithms to solve challenging user problems using publicly available data.

The goal for the program has always been to accept top scientists and provide them with the resources they needed 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 **200 Insight Fellows working as data scientists and engineers on both coasts**. 100% 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, Apple, Microsoft, Square, LinkedIn, Netflix, Twitter, AT&T, Adobe, Palantir, Groupon, Airbnb, Intuit, Yelp, Stitch Fix, Memorial Sloan Kettering Cancer Center, as well as at various well-funded startups. The Fellows now have titles such Data Scientist, Analytics Engineer and Software Engineer, and with the majority of starting base salaries falling in the $100,000-$140,000 range.

Find out more about the Fellows at: insightdatascience.com/fellows.html
Insight Program Locations

In the summer of 2014, Insight expanded to include a New York City location, in addition to the ongoing Silicon Valley program. New York mentor/hiring companies involved in the east coast program include: Facebook, Palantir, Capital One Labs, American Express, AT&T, Verizon, New York Times, Wall Street Journal, Spotify, Bloomberg, NBC Universal, Oscar Health, MTV, Quirky, Foursquare, Memorial Sloan Kettering Cancer Center and various startups.

The NYC sessions have the same seven-week format as the successful in Silicon Valley program. If you are interested in both the Silicon Valley and New York City sessions, please submit your application to the location where you are interested in living and working in after the program. Every day of the program involves interacting with mentor companies and alumni living in the region. This strong network of data scientists will help you as you complete your fellowship and will continue to play a long-term role in your future career.

Being an Insight Fellow

The goal of Insight is to train the next generation of leading data scientists. To do this, we have created a program that is explicitly designed to walk Fellows directly into fulfilling careers at companies on the leading edge of data science and analytics. These companies have a very high bar for talent and are only looking for the best possible candidates in any position they hire for. This is why we are setting a very high standard for acceptance into the program and expect entry to be quite competitive.

While top-tier quantitative ability and scientific data analysis experience is necessary, it is not sufficient to be an Insight Fellow. In addition to sheer smarts, we’re looking for Fellows who are extremely curious people, highly motivated, love learning across a wide range of fields, enjoy collaborating with other smart, driven colleagues and are excited about the opportunity to make a positive impact in the world.
Responsibilities of Fellows

As an Insight Fellow you’re given the opportunity to learn from the best data scientists in Silicon Valley for seven weeks. The program is designed to remove as many obstacles as possible that stand between where you are now and becoming a rising data scientist. With these benefits, however, come a few responsibilities that you must be comfortable with before choosing to apply for the program.

- Full-time participation is expected in the San Francisco Bay Area or New York City for seven weeks of the Insight program and three to five weeks of interviews immediately following. During the program, you will be required to be at the office from 10am-6pm Monday to Friday. Some days, you will need to stay for mentor company visits ending as late as 8 or 9 p.m., accommodating mentors who can only attend in the evening.

- Completing your Insight project will require independent work above and beyond the structured time. Fellows who have taken full advantage of the program often work late nights and weekends, collaborating with their peers. We are looking for Fellows who are enthusiastic, active participants in this intense program.

- You must intend to take a job as a full-time data scientist after the program is finished and agree to interview with mentor companies immediately after the program. If you are interested in working at a company that hasn’t participated in Insight, we’d love to help you navigate that process too, but you must let us know in advance of contacting them so that we can get them involved in the program.

- You agree to become a mentor for future Insight Fellows. In particular, this means coming in for at least three two-hour visits during the subsequent Insight program session, and two additional visits over the following year. Alumni involvement is a cornerstone of the program, and this commitment will help future Fellows learn from your experiences.

The guiding principle of Insight is to be an advocate for the Fellows and create an environment where you can learn and develop into a great data scientist. All we ask in return is that you give it your all, be fully engaged in the process and help pass on your learning to the next batch of Fellows, helping to make the Insight community stronger as a result.
Benefits to Fellows

The Insight program is designed to provide all the training, resources and connections you’ll need to effectively transition from academic research to a career in data science. Here are some of benefits of becoming an Insight Fellow:

- Full tuition scholarship paid for by the hiring companies, so Fellows pay nothing to participate in the program. Need-based scholarships are also available to help cover living and travel expenses -- our goal is to make sure everyone with the right skills can participate in Insight, regardless of their financial situation.

- Desk space at the Insight offices in Silicon Valley or New York City during the program.

- Tips and help from our staff to help with your living arrangements for the duration of the program.

- Guidance and mentorship from industry professionals at every stage of the program and as you prepare for interviews.

- Mentorship from alumni Insight Fellows whose experience, at Insight and at their current data science roles, make them an unparalleled resource to provide guidance and feedback.

- Personalized company matching. We help you figure out which companies you are best off interviewing with and help you arrange the interviews during the final week of the program.

- Help navigating the negotiation of final employment terms once companies have made their employment offers to you.

- Perhaps most importantly: an unparalleled professional network of data scientist friends and acquaintances. Through the program you will meet and get to know several dozen top data scientists, who are Insight mentors and alumni, all of whom will be your industry peers. These professional contacts will be an invaluable source of knowledge, advice, career opportunities and friendship in the years to come.
Frequently Asked Questions

**Will I get hired after completing Insight?** Yes. We aim for approximately one hiring company participating in each session per Fellow. You will effectively be walked into interviews with a half dozen or more companies - all of whom are extremely interested in hiring data scientists. 100% of Fellows who completed the job search 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 within 4-6 weeks immediately following the program. The entire fellowship is a training program where you are taught to be a productive data scientist from day one at your new place of work, and to demonstrate this in the interviews. When you combine all of these factors, it is very safe to assume that as long as you put effort in and actively pursue the job search process through to completion, you will receive job offers following the fellowship.

**What is the best time to do the Insight Data Science Fellows Program?** The ideal time to do the program is when you are less than 4 months away from your ideal start date for your full-time job as a data scientist. In other words, if you will not be able to start your full-time job in industry until more than 4 months after the last week of Insight, you should consider applying for a later session. Some Fellows have negotiated start dates up to one year away, but these are special exceptions. In general, we recommend taking time off from your PhD or Postdoc when you are 1-3 months away from graduating or finishing your research commitment. This way you can do Insight, interview with the hiring companies, accept a job offer, and then go back for 1-3 months to finish up your research.

**Do you accept Fellows who are not US citizens or green card holders?** Yes. However, you must make sure that you will be able to work in the US from the start date of your full-time employment. For Fellows who are completing (or recently completed) a graduate degree in the US, this usually means applying for an Optional Practical Training (OPT)\(^{11}\) period, after which the hiring company will apply for an H1B visa\(^ {12}\) for you. If you qualify for OPT, feel free to apply for any Insight session, as timing is not an issue. If you do not qualify for OPT, then we recommend that you apply for a January session of Insight, to ensure that the hiring companies can apply for an H1B visa for you before the April 1st filing date.

**How is Insight able to offer a full tuition scholarship to Fellows?** There’s a shortage of people with the skills necessary to be great data scientists. Data analytics is a crucial part of what businesses need to be doing in order to successful, yet they are having trouble hiring these people because there are not

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enough candidates with the full skill set they are looking for. As a result, we have been able to negotiate hiring agreements with the companies participating in Insight, which then pay for full scholarships making the program free for Fellows, and allowing us to offer a limited number of need-based living expense scholarships.

**How much will I get paid as a data scientist?** The salaries of Fellows completing the program in the past 12 months were in the range of $100,000 to $150,000 per year, with most around or above $120,000. Fellows joining larger companies got higher base salaries, while those joining smaller startups received a greater part of their compensation in the form of stock options. The majority also received a yearly bonus of 5-15% on top of their base salary.

In addition, all the companies hiring out of our program provide a wealth of benefits. Full health and dental coverage is standard and many companies go the extra mile with employee perks, offering free food, group outings, and paid conference attendance, with some companies even providing free massages and fitness classes.

Also, each company provides stock option packages to their employees: the earlier stage (smaller) the company, the more stock you can expect to receive. The valuations of these fast moving, high growth companies often grow very quickly and a major acquisition or Initial Public Offering (IPO), can lead to a large financial gain for the employees who make that success possible. Finally, with businesses becoming increasingly data driven, there are often opportunities to move into management and other data-focused executive positions, something we hope to help you navigate if that’s a move you’re interested in making down the road.

**What type of impact can I expect to make?** Many of the companies that are involved in Insight and at which you’ll have the opportunity to work, are truly changing the world for the better. They’re not just moving money around or creating Powerpoint presentations. They’re building products that millions of people use every day. They’re creating new methods of communication that lead to a more open and democratic world. They’re providing access to information and knowledge that was never before available to so many people in the world. Many of them are democratizing industries that traditionally have only been accessible to a select few. Others still are opening the gates of commerce to the broader public, making companies more efficient, pushing the boundaries of technology or even transforming fundamental areas of society, like education and health.

What unifies all of these companies is that they are leveraging the power of software and the Internet to change the world. What additionally unites them is that they all have servers overflowing with data - data that has troves of truly
valuable knowledge locked inside. You, as a data scientist, can be one of the people that significantly impacts the lives of thousands, even millions of people, by discovering actionable insights within this data, ultimately leading to better products, an improved user experience or added value to the audiences that these companies serve every day.

Your career will not only be financially rewarding and involve working on interesting problems with smart people, but can truly affect the lives of thousands, or even millions, of people in a positive way. Being a great data scientist at these world leading organizations is not easy and to do it effectively will take hard work and dedication, but by being on the cutting edge of what is happening in technology and on the forefront of data science you can have a tremendously positive impact and help change the world for the better.

**Applying to Insight**

For program dates and locations current accepting applications, please visit:

http://insightdatascience.com/apply.html

Please apply for the session that is in the geographic area where you would like to work after completing the program. Interaction with mentor companies and Insight alumni is one of the most important parts of Insight. In the Silicon Valley session, you will network with companies all over the San Francisco Bay Area. In the New York session, you will meet with companies based in New York and Boston, and the surrounding areas.

If you have any questions please email us at info@insightdatascience.com.