

Some Career Tips and Advice

Overview

The field of Data Science/Data Analytics is rapidly growing in terms of career opportunities, with one [recent study by McKinsey](#) predicting 140-190,000 open positions for 'Big Data' professionals by 2018 in the U.S. alone. And this need for data analysts cuts across a wide range of industries, including technology, finance, consulting, government, manufacturing, pharmaceuticals, and health care. As it becomes possible for organizations to collect relevant information in a more efficient and economical manner, it will also become more and more critical to find professionals who are able to analyze and to interpret this ever-increasing volume of data.

Some Definitions

Professionals in Data Science and Data Analytics work with huge datasets (Big Data) that are generally too large for analysis by using conventional statistical methods and analytical tools. Examples of these large datasets include online reviews of products and services, health records, etc. This data can be structured (e.g. data from GPS instruments), or unstructured (e.g. photos, social media). In general, structured data consists of numbers and words that can be easily categorized, while unstructured data relies more on use of keywords for searching and analysis. The explosive growth of the Internet over the past decade or so has driven the strong increase in unstructured data, and as a consequence an increasing number of data scientist and data analyst professionals work with unstructured data.

Data Science vs. Data Analytics

Data Science is a relatively new and evolving professional field; as a result, organizations often categorize similar positions in different ways. As a result the job titles 'Data Scientist' and 'Data Analyst' are sometimes both used for a very similar job description, depending upon the company posting the opportunity.

In general, the responsibilities of a Data Scientist tend to focus on future-oriented modeling of data with an eye to predicting future trends, while a Data Analyst's job focus is on looking at data to uncover existing patterns. Professionals in both roles use similar analytical tools. To provide further information on this topic, sample job descriptions for both Data Scientist and Data Analyst roles are shown later in this Tip Sheet.

Essential Skills and Training

While requirements for employment in the Data Science/Data Analytics areas vary somewhat according to specific company needs, there are some common skills that span across most positions:

Multivariable Calculus and Linear Algebra
Statistics
Machine Learning
Knowledge of Databases such as SQL

Software Engineering
Data Mining
Programming Languages such as Python, C/C, Java
Platforms such as Hadoop

Additionally, strong communication and problem-solving skills are essential to most jobs. Finally, gaining some related experience in the field through summer internships or academic projects will significantly enhance your skillset and improve your prospects for employment.

Again, keep in mind that specific requirements will vary according to company and position.

Sample Job Descriptions

To provide some insights into the skills and backgrounds sought by employers, copied below are job descriptions from recently posted Data Science and Data Analytics opportunities.

Data Scientist

Utilize statistical methods including mix modeling, predictive response modeling, sales response modeling, experimental design, CART/CHAID, latent class segmentations, cross-sectional and time series analysis, discrete choice modeling, data mining and optimization techniques to meet client business needs; develop and implement statistical tools to build predictive models helping support clients in customer marketing and demand generation initiatives; collaborate with internal consulting teams to set analytic objectives, approach and work plans; providing programming and analytic support to internal consulting or related teams, writing macros and automating statistical procedures utilizing SAS and Microsoft Office; perform analytics utilizing SAS; translate analytical model results to business insights for the client; Develop and test machine learning algorithms applied to targeting, recommendations, behavioral analytics, etc. on Big Data; Work closely to productize the algorithms to address real world data

Data Analyst

- Using leading-edge tools to mine and analyze customer and transactional data to determine the impact of loyalty programs and marketing campaign on customer behavior
- Creating actionable customer segments/clusters for reporting and targeting purposes
- Creating predictive models to determine expected results of loyalty programs/marketing campaigns.
- Analyzing email campaign data to recommend/improve promotional opportunities
- Developing new analytical methodologies to deliver deeper insights to our clients
- Presenting results to both internal and external customers

Selected Online Resources:

General Information:

Booz Allen Hamilton, [The Field Guide to Data Science](#)

Bureau of Labor Statistics, [Working With Big Data](#)

Master's in Data Science, [The Life of a Data Scientist.](#)

Naturejobs.com, <http://blogs.nature.com/naturejobs/2013/03/18/so-you-want-to-be-a-data-scientist/>

Udacity.com, [8 Skills You Need To Be A Data Scientist](#)

[Data Science/Data Analytics Job Posting Sites](#) (Handshake is also an excellent source).

<https://www.kaggle.com/forums/f/145/data-science-jobs>

http://www.glassdoor.com/Job/data-scientist-jobs-SRCH_KO0,14.htm

<http://www.careerbuilder.com/jobs/keyword/data-scientist>

https://www.linkedin.com/jobs/data-scientist-jobs?trk=amworks_jserp_redirect