9 signs it's time to switch to a career in Data Science & Machine Learning

A career in Data Science & Machine learning seems exciting, isn't it? It has been called the sexiest career of the 21st century, by none other than Harvard Business Review. And why not? Machine learning is likely to be the field that produces the maximum number of game-changing innovations over the next 50 years, if not longer. If you want to ensure that your work is always changing,

If you're reading this, we take it that you want in. Perhaps you're a programmer, statistician, mathematician, analyst or even in an unrelated job. It's a growing field and there's room for literally everyone. In fact, the world is experience a severe shortage of machine learning experts. So read on and figure out if there's room for you in this vast and exciting world.

Sign #1: You're bored out of your mind at your current job

Are you bored out of your mind at work? Do you just wait for the weekends? Do you think it's okay because all your friends don't enjoy their work either?

Well, maybe that's good enough for the short term, but it's not going to work over the long term and you know it. If you happen to be working in IT, you should know that the boom has since passed on to the data sciences. Whereas regular IT jobs now lead to stagnation, if not automation, machine learning positions are brimming with opportunity.

The field is actually hungry for eager, talented individuals. You may now have the skill set just yet, but so long as you can prove yourself in one of the following fields -- math, stats or programming -- you have a shot at getting there. Of course, it will require a tweaking of your knowledge to the machine learning domain. But fear not, there are plenty of online tutorials, courses, books, forums to help.

Action item:
Build a study plan that will help you transition to the data sciences. It can take you less than six months, if you put your mind to it. If you're not a programmer, learn a language like Python. There are plenty of resources for non-programmers, too.

Sign #2: You know the hype is true

American research and advisory firm Gartner predicted in the 2017 'Gartner Hype Cycle for Emerging Technologies' that machine learning is two to five years from mainstream adoption.

The report suggested that companies using artificial intelligence and machine learning will have a distinctive competitive advantage over companies that follow the more traditional business models. Moreover, nearly all companies will need large machine learning departments, not just the Googles and Amazons of the world. If every company in the world is now a software company, every company in the world is also a data company.

Just think about it: most new innovations today are emerging from heavy investment in data. Everything from social media analysis to self- driving cars to wearable technologies to language processing tools are part of the AI invasion. In a few years' time, a combination of Internet of Things and machine learning will bring cutting-edge medical innovation, smart homes, smart grids, smart cities, smart everything.

You see where this is going, don't you? More companies need data scientists. The ones who get in sooner, rather than later, will have a great shot at a long and fruitful career.

Action item:
Do some research on where jobs are shaping up in the machine learning world. Map your skills to a few of the available jobs and get started.

Sign #3: You are a math machine

Is calculus your jam? Can you do linear algebra in your sleep? Well, why aren't you already in the domain of machine learning? It couldn't be better anywhere else.

Of course, aligning your abilities with the requirement in machine learning should be your first priority. For example, you already know calculus, but do you know how it's used to minimise the loss function in gradient boosting techniques? Well, time to do some reading on the basics.

Basically, being good at mathematics isn't just a sign that you should be solving machine learning problems in 2018, it's a clarion call. Just do a few tutorials online (there are plenty of good ones). Even if you get up-to-date with the basics, you'll quickly be in a position to apply for jobs if you're as good as we think you are at math.

Action item:
Read a few books on machine learning, join a forum and set up interactions with others who were once in a similar situation. Evaluate how they made it into machine learning and begin your journey!

Sign #4: You're hell bent on business

To a layperson, machine learning and everyday businesses may seem poles apart. But this isn't the case at all. In fact, you couldn't be more wrong. Machine learning experts aren't just geeks with an interest in algorithms, they're making decisions that can change the course of a business.

Just think of a machine learning solution and we'll tell you how it's making big bucks for some company. Google translate may be free for you, but think of the number of companies that could create a similar technology to translate documents in their various markets. All the data that airports across the globe offer publicly, think of how it can be used by online travel agents.

Data scientists are there to enable businesses to make better decisions and create more intelligent solutions. This requires a good understanding of the domain, which informs decisions on what to do with the data being generated. It's no wonder that most experts believe that businesses with data science departments will have a huge lead over the competition. After all, if one team is working with data, and the other with intuition, who you think is going to win?

Action item:
Pick up a book on the use of data science in business. Data Smart by John Foreman is a particularly good place to get started.

Sign #5: You're always looking for more

Growing fields always have more to teach you than any other. If you're eager to learn and like to keep up-to-date with the latest technologies, you'll find machine learning to be a fascinating field. It's evolving quickly, keeping even the most experienced scientists on their toes. If you are inclined to the skills we've discussed elsewhere in this article, and are always looking for new developments in the tech world, machine learning could be your next big challenge and opportunity for growth.

Action item:
Read about machine learning and pick an area that interests you. Then spend a few months becoming a master in the area. Enter competitions, prove yourself and build a portfolio that gets you in the field.

Sign #6: You love data (and love is patient)

Data is the new oil. That's what they've all been saying. Over the past four years, we've recorded as much data as we did in the millions of years before that. We've learned how to store data cheaply and make predictions with it.

If you love working with data, you're in luck. Machine learning experts work with a whole lot of data, patiently and painstakingly sifting, sorting and analysing. It's a repetitive task that can take a lot of time and energy. In fact, this work is typically divided between a whole team of people, and it can take years to optimise a machine learning model that really works in the real world. Working with data can be tough, but it's well worth the wait, given the changes it will bring to the world. Imagine being the person responsible for telling Netflix users which movie to watch next or building a model that works in self-driving cars.

Action item:
Pick a free dataset that is frequently used in machine learning (there are 100s online) and teach yourself a bit of data munging.

Sign #7: You have good intuition

All the data in the world could not substitute intuition entirely. A good data scientist knows how to use the data in a solution. LinkedIn's People You May Know, for example, was developed by an employee who just felt that people would be interested in the feature. All intuition, no analysis.

Even within the job, though, a good intuition about data is useful. For example, a machine learning model is usually deemed successful if 80% of its predictions are correct. It takes years for a reasonably complex model to find this kind of success. Data scientists, therefore, need to know what will deliver results and what won't, or they could forever be searching for better results.

To test their intuition, scientists typically create data visualizations quickly using standard packages like R, Python, Matlab and Excel. Being good at understanding metrics will enable you to establish metrics for defining the success or failure of your system.

Action item:
Begin a project and try to find different ways to improve the results, using different datasets. Test out your ideas using different visualisation methods.

Sign #8: You love algorithms

Algorithms are perhaps the biggest part of machine learning. To be a data engineer, you need to be an expert at least a few of them. While there are certain packages that make things easier for non-experts, those with a firm understanding of the working of an algorithm would always have the upperhand.

If you loved learning new algorithms in university, it would be a good idea to understand how they're implemented in machine learning. Join a community on Reddit and see what's going on. Become a master with a couple of algorithms and show off your skills by putting up the code on GitHub. Getting feedback from the community is a great way to build confidence in the field.

Action item:
Foundations of Machine Learning is a great place to start your journey. But you don't need to read the entire book. Just map your skills to your area of interest and take it from there.

Sign #9: You're already in analytics, but want to move into machine learning

If you are currently working in the field of analytics and have already have experience with programming and analytics, you have the basics covered to advance into machine learning. Being adept at working with databases and programming languages and understanding algorithms and data structures, a job in the field of machine learning will challenge you to find business solutions through cutting edge technology.

Expand your existing tool set by learning programming languages such as R, Python, SAS, MATLAB, SPSS, MySQL and Java. Python has an extensive machine learning library called scikit-learn, where you can easily run machine learning algorithms such as SVM, Linear Regression and Logistic Regression on data sets. It is especially useful for deep learning, along with Python's library, Theano.

Action item:
Speak to peers, take courses, read books on algorithms and participate in competitions. Also a good idea to read expert opinions and research papers to find out where the field is going.

Conclusion

Remember that although resources are plenty, machine learning is by no means a cakewalk. Frustration is part and parcel of learning any new technology, especially when you are in a playground as dynamic and fluid as machine learning. To keep focus, it helps to have a mentor to guide you through the learning process.

Machine learning has all the characteristics of a challenging career. Where other sectors in IT may be more mechanical, machine learning is more abstract and theoretical – you will require a lot of self-drive, comprehension and interest to forge ahead. Of course, if you have the drive, the industry has the jobs and can offer the best salaries and most interesting work.