As a machine learning engineer, working in this branch of artificial intelligence, you'll be responsible for creating programmes and algorithms that enable machines to take actions without being directed. An example of a system you may produce is a self-driving car or a customised newsfeed.

A key feature of this work is that you're providing computers with the ability to learn automatically and improve from experience, without being programmed.

There may be some cross-over with other disciplines, including:

* computational statistics
* mathematical optimisation
* data mining
* exploratory data analysis
* predictive analytics.

## Responsibilities

As a machine learning engineer, you'll need to:

* understand and use computer science fundamentals, including data structures, algorithms, computability and complexity and computer architecture
* use exceptional mathematical skills, in order to perform computations and work with the algorithms involved in this type of programming
* produce project outcomes and isolate the issues that need to be resolved, in order to make programmes more effective
* collaborate with data engineers to build data and model pipelines
* manage the infrastructure and data pipelines needed to bring code to production
* demonstrate end-to-end understanding of applications (including, but not limited to, the machine learning algorithms) being created
* build algorithms based on statistical modelling procedures and build and maintain scalable machine learning solutions in production
* use data modelling and evaluation strategy to find patterns and predict unseen instances
* apply machine learning algorithms and libraries
* lead on software engineering and software design
* communicate and explain complex processes to people who are not programming experts
* liaise with stakeholders to analyse business problems, clarify requirements and define the scope of the resolution needed
* analyse large, complex datasets to extract insights and decide on the appropriate technique
* research and implement best practices to improve the existing machine learning infrastructure
* provide support to engineers and product managers in implementing machine learning in the product.

## Skills

You'll need to be able to demonstrate:

* exceptional mathematical skills, in order to perform computations and work with algorithms
* excellent written and verbal communication skills
* the ability to explain complex process to people who aren't programming experts
* strong analytical skills
* high attention to detail
* innovation and creativity
* the ability to work with large, complex datasets.

In some positions, depending on seniority, you may also need to demonstrate the following:

* leadership and management of both teams and projects
* detailed knowledge of machine learning evaluation metrics and best practice
* strong Python coding skills
* experience of a typed language (such as, C++ and Java)
* Linux SysAdmin skills
* messaging (including, Kafka, RabbitMQ, ZeroMQ)
* distributed systems tools (such as, Etcd, zookeeper, consul)
* competence with infrastructure as code (Terraform, Cloudformation and similar)
* a portfolio of your past experience (include any blogs, talks, contributions to Open Source, Kaggle).