MODULE 1 UNIT 1

Notes Video 1 Transcript

UNIVERSITY OF CAPE TOWN

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ETIENNE PIENAAR: By now you are probably aware of the hype around data science, with exciting, futuristic-sounding nomenclature, such as machine learning and artificial intelligence dominating popular and even political discourse. Indeed, the buzz around data science is not unfounded. Big data and statistical analysis have become critical components in the functioning of virtually all modern businesses, with applications spanning fields ranging from manufacturing, optimisation, operations, research, and retail to insurance and banking. And most notably, perhaps even most notoriously, the tech industry. Look around you and you won't have to go far to find businesses which are shaped in some way by data science.

Examples

PIENAAR: As a consequence of the dependence of modern business on data, the number of applications of data science in industry is too large to enumerate in a single video. However, some notable fields cover everything from customer segmentation for targeted advertising to fault detection in manufacturing.

Data science is also well established in the financial services industry. Banks use popular modelling techniques for everything from revenue forecasting and credit card fraud detection to calculating credit risk quanta, both in traditional lending schemes as well as modern financial products, such as microloans. Insurers also use the same machinery to accurately model claims experience and optimise claims handling. Ultimately, allowing them to build improved insurance products, whilst maximising returns.

The cutting edge of data science is perhaps most notably in the tech industry, with both the theoretical and the physical data science technologies – i.e. the algorithms and the hardware – directly integrated into the day-to-day running of such companies and the products that they offer. Indeed, quite a number of the algorithms in the modern-day data scientist's toolbox can trace their origin to various tech industry problems. Some obvious examples are recommendation systems and web search, and more recently automated image slash video processing and security.

Advanced variants of some of the topics covered in more— in this courses may even shape the future of transport, with autonomous transport and freight systems already being built into products available today.

Conclusion

PIENAAR: So, data science leverages statistical analysis of large amounts of data in order to either augment, streamline, or even create the value chain in modern industry. This is achieved by making use of algorithms to identify patterns in data that give useful telemetry for the implementation of high-level cognitive functions, such as strategy and decision-making, as well as low level productive functions, such as physical products or services.

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For these purposes, it's useful to think of businesses as free market machines and data science as a key component in the nervous system of such machine. Indeed, the number of applications of data science is ever increasing, and identifying how data science can be applied in your particular industry is a useful skill in itself. So, can you think of any potential applications to your particular domain of expertise? Where could your organisation benefit from data science?

Did you understand the topics covered in this video? Select the button on the lower right-hand side of the screen to view the chapter menu.

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