

Data Science : A Perspective

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Hi, I'm Casey

► Education

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► I tend to work with “Big Data”

- I am a consulting data scientist and big data architect at Hortonworks, an open source software company
- I was an architect/software engineer on the high performance indexing team at Explorys, a medical informatics startup based in the Cleveland Clinic
- I was a Research Geophysicist in the Oil Industry doing signal processing
- I built a VOIP network oriented toward WoW gamers

Data Science : The Skin

“A data scientist is a peculiar blend of developer and statistician that is capable of turning data into awesome.”

— Josh Wills, Director of Data Science at Cloudera

Data Science : The Skin

“A data scientist is a statistician who lives in San Francisco.”

— Snarky Internet Troll

Data Science : The Skin

“Data Science is an apple.”

— Me

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- ▶ Gathering and repurposing data that is otherwise lost or forgotten.
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 - ▶ Natural Language Processing
- ▶ Visualizing said data in a way which allows for an insight to be derived.

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- ▶ Traditional statistical analysis focused on predicting some numerical quantity from curated, well planned data.
- ▶ Increased computing power and decreased cost left many data that could be gathered without a home in existing statistical models and therefore dropped.
- ▶ Data science is the expansion of traditional analytics to include data that is being dropped or is unstructured.

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- ▶ Some of the most interesting data gathered is not simple numerical or categorical data.
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- ▶ Natural language processing is a technique to make a computer begin to understand the written word.
- ▶ Sometimes the outputs are structured data and sometimes the outputs are insights themselves.

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- ▶ Traditional statistical models are generally well defined by a human and run over the data.
- ▶ Machine learning models have a human defining the input, but the machine develops an internal model based on examples of the data.
- ▶ Sometimes these approaches are at odds, but both techniques have merit and are used in the field.

The Seeds: The Skill Set

- ▶ Statistics/Mathematics
- ▶ Computer Science
- ▶ Domain expertise
 - ▶ Data science is applied to a domain, so domain expertise is a necessity.

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- ▶ Computational power and storage has made keeping and analyzing massive amounts of data feasible.
- ▶ More and more industries are interested in leveraging this data to make decisions.
 - ▶ Retail
 - ▶ Healthcare
 - ▶ Finance
 - ▶ Oil and Gas

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- ▶ Universities are just starting to widen their programs to create cross-domain training for data science.
- ▶ Furthermore, data science as a practice is hard to commoditize/productize.
- ▶ This adds up to high demand and low supply.

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- ▶ Realistic methodologies to predict expected time to completion for data science tasks do not exist or are flawed deeply.
- ▶ Tooling is either extremely expensive (restricting range of analytics) or free and harder to use.
- ▶ Explaining insights gained can be extremely challenging.

Conclusion

- ▶ Thanks for your attention
- ▶ Questions?