



Steve Urkel and Urkelbot, whose intelligence doubled every 2 minutes. Image Credit: ABC's Family Matters

Can Artificial Intelligence replace Data Scientists?

June, 2018,

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Steve Urkel from the world-famous ABC's sitcom **Family Matters** was not a Data Scientist because in the 90's we did not call them like that. But the nerdy teenage Urkel is no doubt the archetype of the Data Scientist. In one of the episodes, Urkel built a robot whose intelligence doubled every two minutes. This sounds pretty cool but was a terrible idea. In no time, Urkelbot overthrew its master and locked him in the basement...

McKinsey estimates that about 64-69% of the total time spent on data collection and processing can be automated. As technology advances, many are questioning whether or not A.I. has the potential to work faster and cheaper than data professionals in the near future.

There are two main kinds of data professionals:

- **Data Engineers**, who extract and assemble data from different sources, transform it, clean it, and then load it in a repository in a standardized format.
- **Data Scientists**, who take data from that repository in order to design, build and test advanced models, based on machine learning algorithms.

Machine learning is by definition part of A.I. Additionally A.I can automate many of the tasks that Data Scientists and Data Engineers perform. For starters, A.I. can be applied to the following tasks typically performed by Data Engineers:

- Preparing data, cleansing, checking for correctness, identifying outliers and empty records
- Self-service systems to make data available to teams
- Automating deployment of models into production

Moreover, A.I. can also automate some of the work of Data Scientists in the following ways:

- Detecting relevant prediction features and representing them
- Generate hundreds or thousands of variations of models (for different segments, markets)
- Building basic models through intuitive interfaces
- Detecting obsolescence of models

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A.I. can help Data Scientists generate hundreds or thousands of variations of models with different prediction features and create iterative simulations to finally choose the best variation. As a matter of fact, the best iterations involve both A.I. and Data Scientists. A dynamic, multi-faceted decision process obtained through automation will outperform any single algorithm, no matter how advanced, by automatically testing, iterating and monitoring data quality; incorporating new data points as they become available; and making it possible to respond wisely to events in real

time.

Additionally A.I. can also assist Data Engineers preparing raw data, cleansing it and checking for correctness. This is not something that A.I. can handle entirely yet. It still requires human judgment to turn raw data into insights that make sense for a complex organization. A.I. cannot yet truly understand what specific data means for an organization, its business and the context of the industry. A.I. can help automate lower-level steps in data preparation and visualization, leaving Data Scientists to walk decision-makers through what the insights really mean.

Lower-level tasks, which are typically performed by Data Engineers will be first impacted by A.I. For example, in the 80's as computer programming languages advanced, demand for lower-level programmers did indeed decrease. However, demand for developers in general increased as companies adapted to these new languages. The same evolution is happening right now in analytics, with A.I. automating lower-level tasks. This leads to the transition of more complex, problem-solving tasks to humans. As a result, the combination of A.I. with human problem-solving has actually empowered, rather than threatened, the jobs of Data Scientists.

But Data Scientists and Data Engineers need to adapt. For starters, as A.I. automates lower-level data processing, Data Engineers will need to migrate towards data science. Even among Data Scientists, only the youngest have been trained in the more advanced deep learning approaches. As technology continues to advance, the skillset of Data Scientists will be rendered useless in 12 to 18 months. Data Professionals will need to either learn new A.I. tools or to get left behind.

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Instead of posing a threat to data science jobs, it is much more likely A.I. will become extremely intelligent assistants to Data Scientists, allowing them to run more complex data simulations than ever before. Analytical skills will soon be required in many more traditional roles. This transition is expected to create a new class of Data Scientist – let's call them Citizen Data Scientists – that bridges the gap between business roles and strictly analytical roles.

Fortunately our friend Steve Urkel was able to finally overthrow the tyrannical Urkelbot whose intelligence doubled every two minutes, just 22 sitcom minutes after being locked in the basement. Contrary to be a menace to human kind, at the moment when A.I. surpasses human intelligence, Data Scientists are likely to continue working with A.I. or developing newer A.I. systems.

About the author

Pedro URIA RECIO is thought-leader in artificial intelligence, data analytics and digital marketing. His career has encompassed building, leading and mentoring diverse high-performing teams, the development of marketing and analytics strategy, commercial leadership with P&L ownership, leadership of transformational programs and management consulting.

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