



2020: The Year We Put More Trust in AI

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Biography

Amy Hodler is the Analytics and AI Program Manager at Neo4j (<https://www.neo4j.com>). She loves seeing how Neo4j's ecosystem uses graph analytics to reveal structures within real-world networks and infer dynamic behaviour.

In her career, Amy has consistently helped teams break into new markets at start-ups and large companies including EDS, Microsoft and Hewlett-Packard (HP). She most recently comes from Cray Inc., where she was the analytics and artificial intelligence market manager.

Amy is the co-author of *Graph Algorithms: Practical Examples in Apache Spark & Neo4j*, published by O'Reilly Media (<http://neo4j.com/graph-algorithms-book/?ref=pr->)

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Abstract

In a world driven by connections – from financial and communication systems to social and biological processes, it is not surprising that interest in graph algorithms has exploded. Graph analytics can uncover the workings of intricate systems and networks at massive scales for any organization, and with this we see graph technology and the supply chain is fast becoming increasingly important to ethical and responsible AI, explains the author of this article.

Introduction

Business and governments are turning to artificial intelligence (AI) for a variety of reasons including satisfying our desire for faster more personalized services – but how do we build trust in (and into) these systems?

AI comes with the promise of reduced operational costs, smarter decision-making and increased efficiencies designed to improve the consumer experience. As we enter a new decade, AI will need to be more predictable and prove it is more trustworthy. Essential to this is well thought out AI governance relating to data quality and that requires an AI supply chain.

There is an obvious cross over here. Providing predictable accountability and permitted data will drive further investment and innovation in AI, while achieving wide-scale adoption citizens will not only need to trust the technology, but be comfortable with and fully understand how their data is actually being used.

At a minimum, AI is beginning to assist in making 'decisions' that will have a direct impact on our lives. At a maximum, these decisions are being made with little or no



human interaction. This raises ethical issues, edge cases and questions about AI and its alignment with the values and principles of society.

A moral decision-making framework for AI

As AI becomes more sophisticated it will be used for more complex decision making. But, if an automated decision is proved to be the wrong one, who will get the blame? Not knowing who will be held responsible if something goes wrong will undermine citizens' trust in the areas of health diagnosis, insurance claims and so forth. The issue of competence is one that needs to be tackled.

Developing transparency

If AI is used to make a significant decision we should strive for a more transparent view of the reasoning process to work out explainability and accountability. Also, just as in supply chains, tracking leads to better understanding and we can use this model to better track data as well as look at using interpretable models when possible.

Getting rid of bias

Bias can easily enter into AI systems. Training data it uses, for example, can include biased human decisions or flawed sampling. It is therefore essential that care is taken to cleanse, balance and de-bias the data fed to AI so that it can learn in a non-discriminatory way. This means understanding the data and its sources.

Ethical guidelines and context for AI will accelerate in 2020

This year we will see the ethics around AI become more of a factor. The EU Ethics Guidelines¹ are likely to include updated checklists early this year. At the same time, we expect organizations to use techniques such as adding context to build and implement more responsible AI.

AI is smarter, more flexible and more trackable when we add context. When AI systems are given related information to draw on, they are more accurate, can handle a broader range of situations and make more complex, nuanced decisions.

Graphs are extremely impressive and established tools for managing supply chains, helping to coordinate, track and unravel complex interdependencies. This is a very important point. You can purchase an eco-friendly t-shirt – but you do not know if an AI is ethically trained or the training data used is biased. This is completely unsatisfactory. We predict that in 2020, as the challenge of AI and ethics becomes a major issue, we must provide AI with the right context and transparency to effectively track supply chains.

Graphs have been recognized as extremely powerful tools when it comes to incorporating context. We predict that this year, as the challenge of AI and ethics comes to the fore, providing AI with the right context for more trustworthy and smart decision making will be critical.

Reference

- ¹ <https://ec.europa.eu/digital-single-market/en/news/eu-artificial-intelligence-ethics-checklist-ready-testing-new-policy-recommendations-are>