AT THE INTERSECTION OF BIG DATA, IOT AND AI

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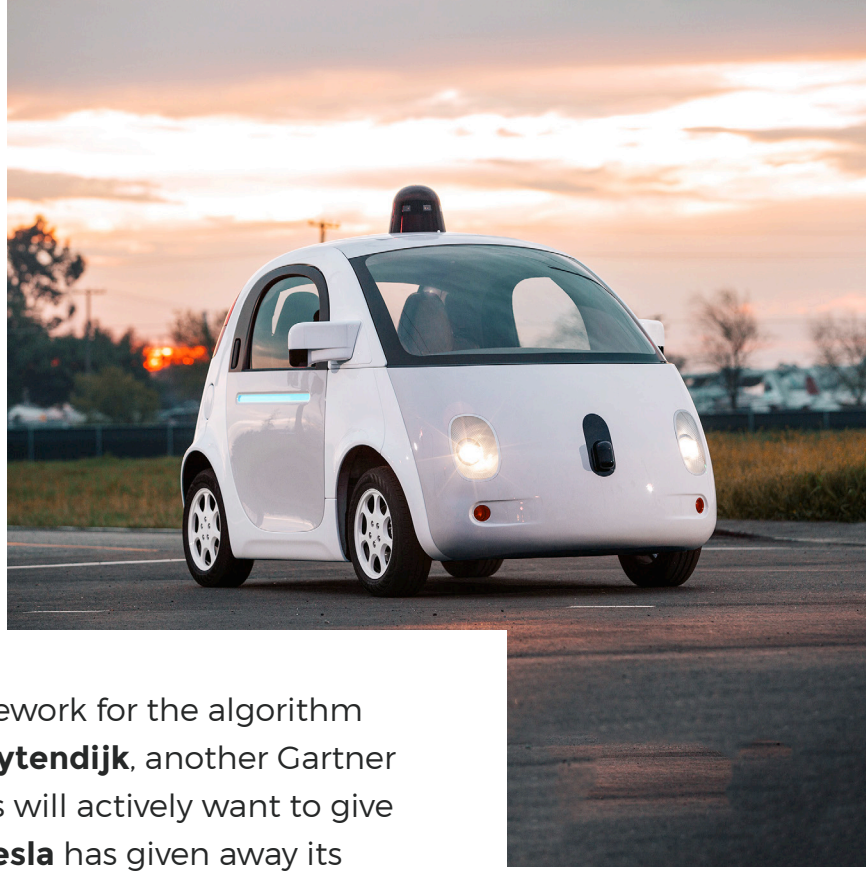
In the midst of the market buzz around the Internet of Things, Big Data, the Cloud, and Deep learning (AI), it's become difficult to pinpoint the key paradigm shift taking place: convergence.

To understand this shift, we should consider all four contributing phenomena together, rather than separately. IoT, Big Data, the Cloud, and AI are defining our future, just as the convergence of the internet and mobile phones in 1999 led to our current technological moment. However, "data is inherently dumb." In the words of Gartner's Senior VP of Research Peter Sondergaard:

> **"Big data is not where the value is. Data is certainly necessary, but it is transient. By itself it is not transformative."**

Here we are, at the dawn of the algorithm economy.



"Give. Take. Multiply."

“Give. Take. Multiply.” is the framework for the algorithm economy proposed by **Frank Buytendijk**, another Gartner VP. In this new world, businesses will actively want to give their product away, much like **Tesla** has given away its patents.

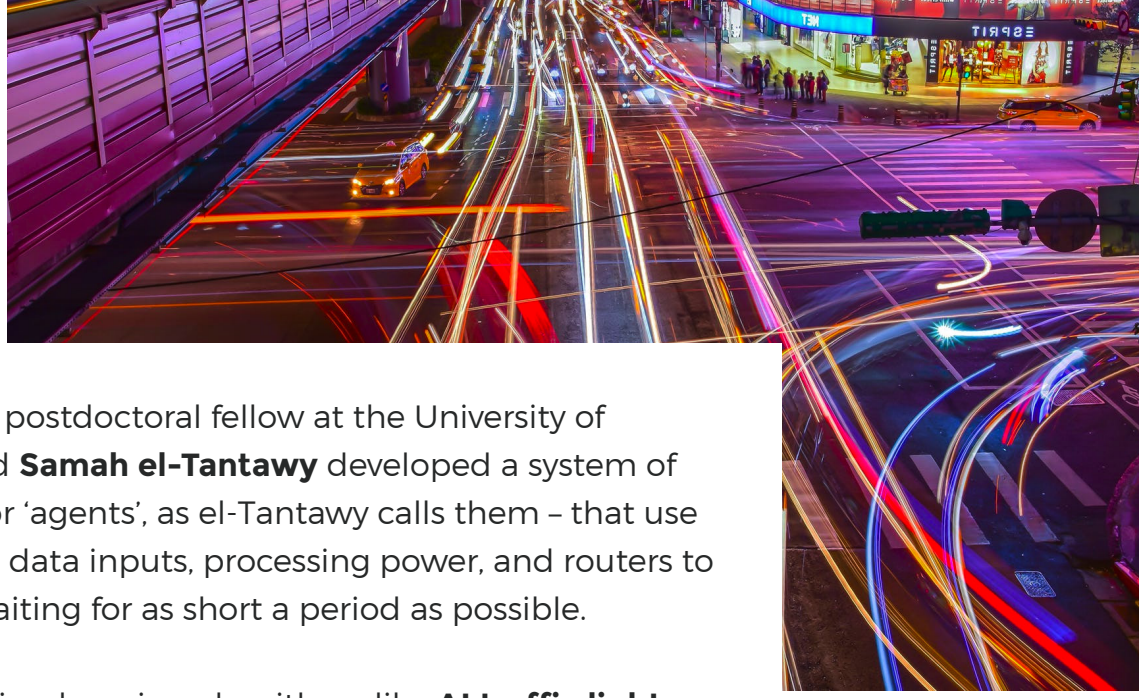
Algorithms are everywhere. For example, **Google** isn’t popular because it has access to massive amounts of pure data. Google’s success stems from the company’s algorithms, which sift through that data to deliver the most desirable result to an end user.

One of the most interesting and current examples of algorithmic technology is **Google’s self-driving car**. The car uses software, data, sensors and physical assets to rid the road of human error and liberates drivers.

HAL 9000 or 9000 HALs?

The future of AI isn’t just about one smarter, larger, and faster super-intelligence, like HAL 9000 from.

I’ve written about IoT as an **Internet of Agents** (in which huge swaths of data are fed to a “collective brain” powered by AI).The future of AI will be comprised of small, dedicated agents that intimately know the user and work on their behalf to improve that user’s everyday life.



For example, a postdoctoral fellow at the University of Toronto named **Samah el-Tantawy** developed a system of traffic lights – or 'agents', as el-Tantawy calls them – that use on-the-ground data inputs, processing power, and routers to keep drivers waiting for as short a period as possible.

As more machine-learning algorithms like **AI traffic lights** become available, larger amounts of data will be processed in real time to produce output. **Data-driven AI** will use Big Data's highly distributed capabilities to improve nearly every aspect of everyday life.

Algorithms Everywhere

One caveat: as IoT and Big Data processing become more affordable, new algorithms will become coveted, protected, and tightly copyrighted. We risk creating a major imbalance, thereby reducing innovation in the long run.

Just like the current fracas around **Net Neutrality**, the convergence of IoT and AI may yield many benefits. Still, accessibility, openness, and competitiveness aren't guaranteed. This is why projects like the **OpenAI initiative** are so important. It's reassuring that those projects are supported by key industry leaders.

Despite the challenges, one thing is clear: IoT and AI will impact our society. We should do our best to keep technologies free to leave room for innovation.