

Guided Tour of Machine Learning in Finance

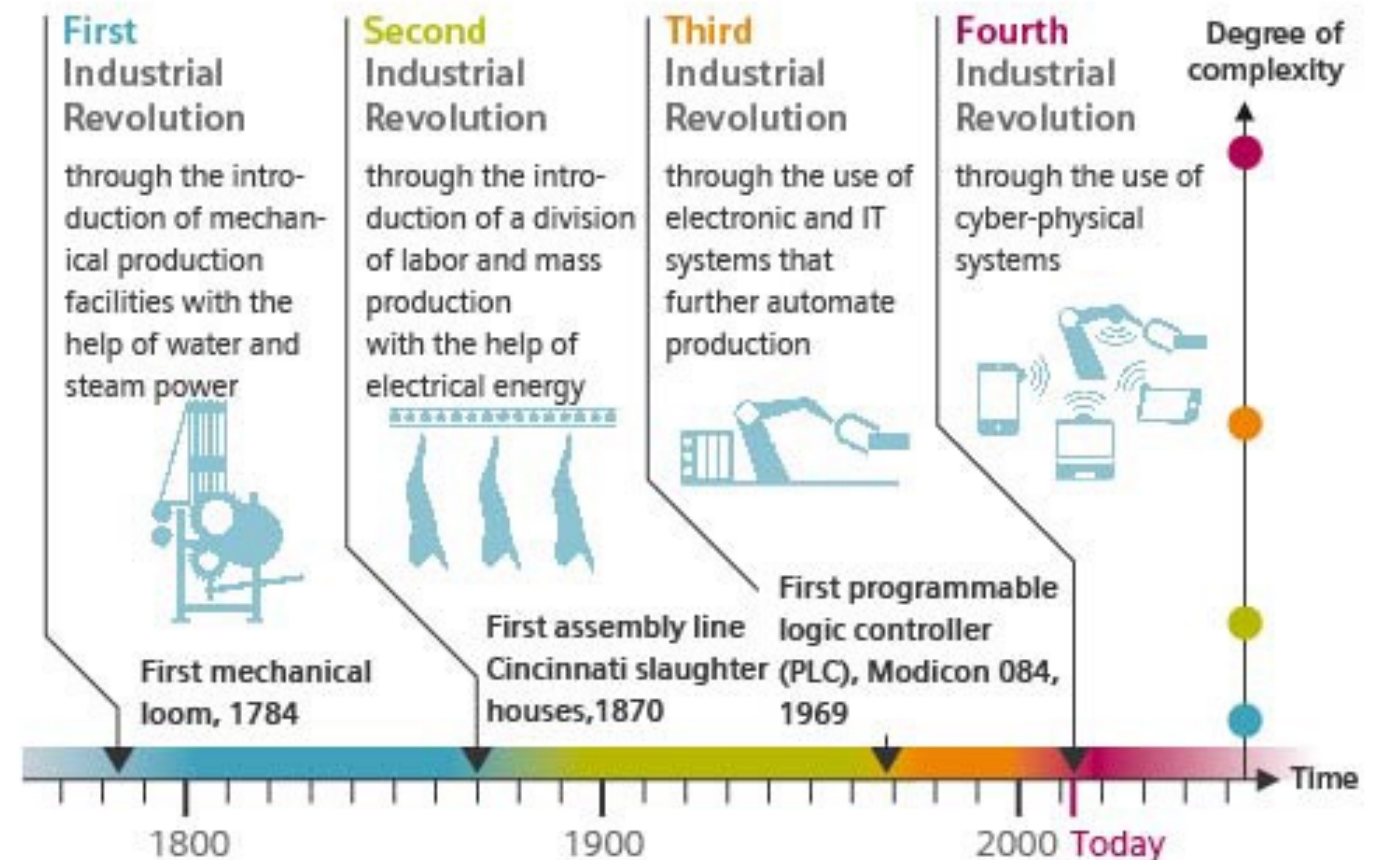
AI and ML, part I

Igor Halperin

NYU Tandon School of Engineering, 2017

Industrial revolutions

From Industry 1.0 to Industry 4.0



Source: DFKI (2011)

Where will the AI revolution take us?

The revolution in AI
has been profound,
it definitely surprised
me, even though I was
sitting right there.

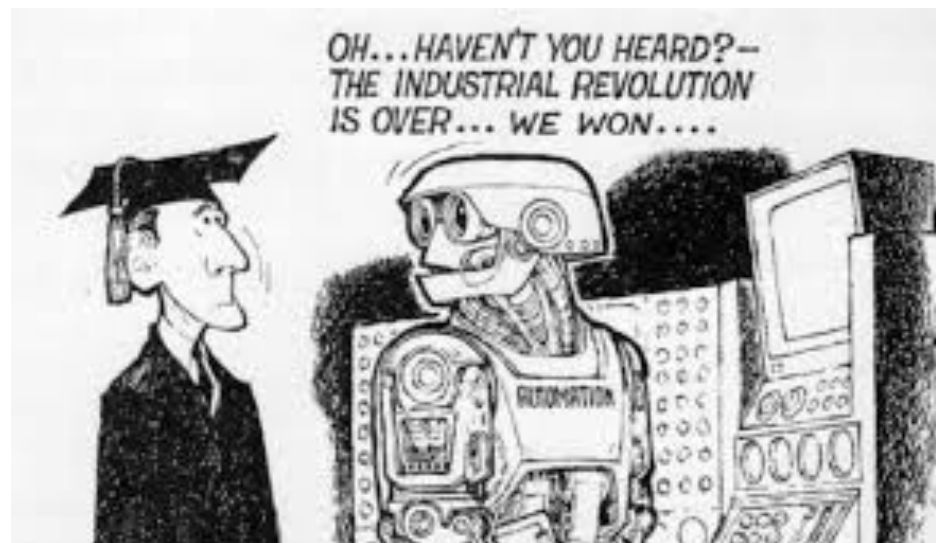
Sergey Brin
Google co-founder



Where will the AI revolution take us?

The revolution in AI
has been profound,
it definitely surprised
me, even though I was
sitting right there.

Sergey Brin
Google co-founder

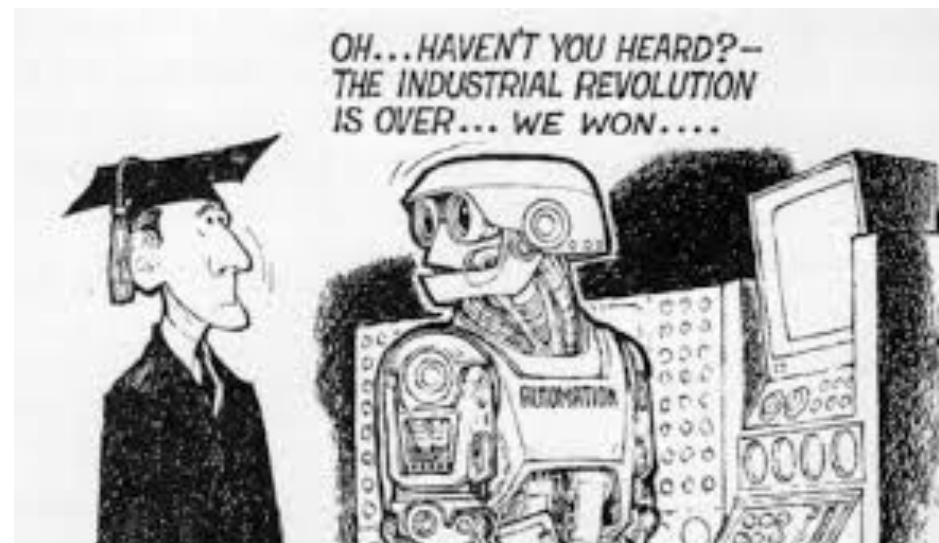


The future according
to Stephen Hawking

Where will the AI revolution take us?

The revolution in AI
has been profound,
it definitely surprised
me, even though I was
sitting right there.

Sergey Brin
Google co-founder

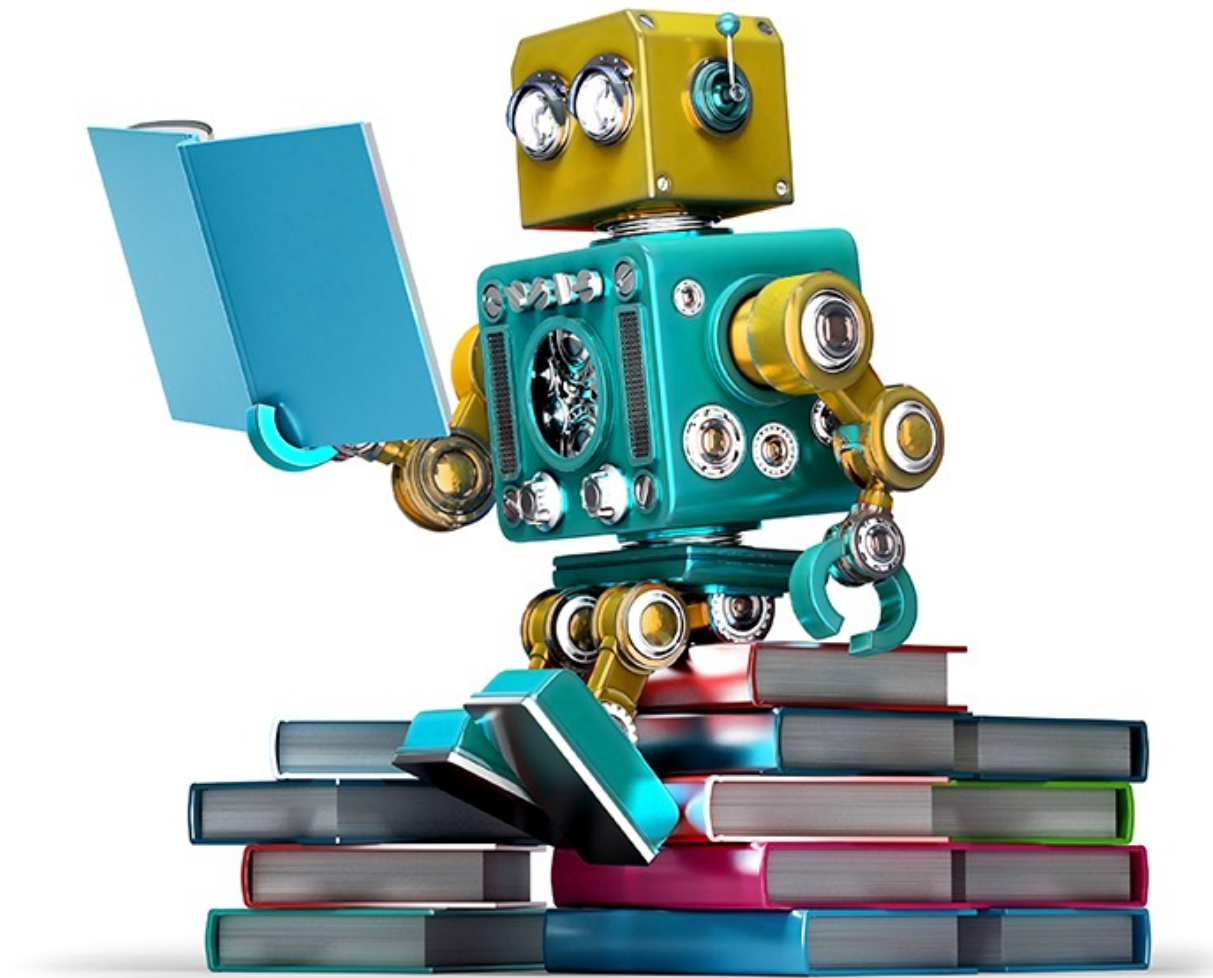


The future according
to Stephen Hawking

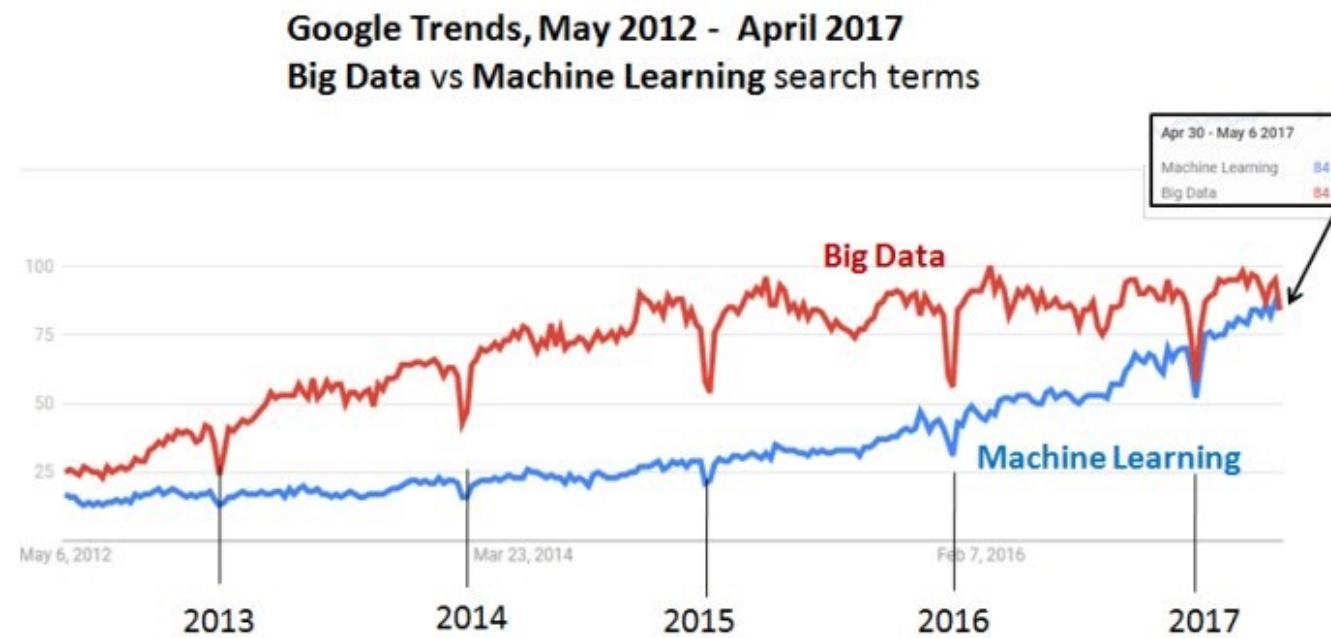


The future according
to Elon Musk

What is Machine Learning?



Buzzwords...

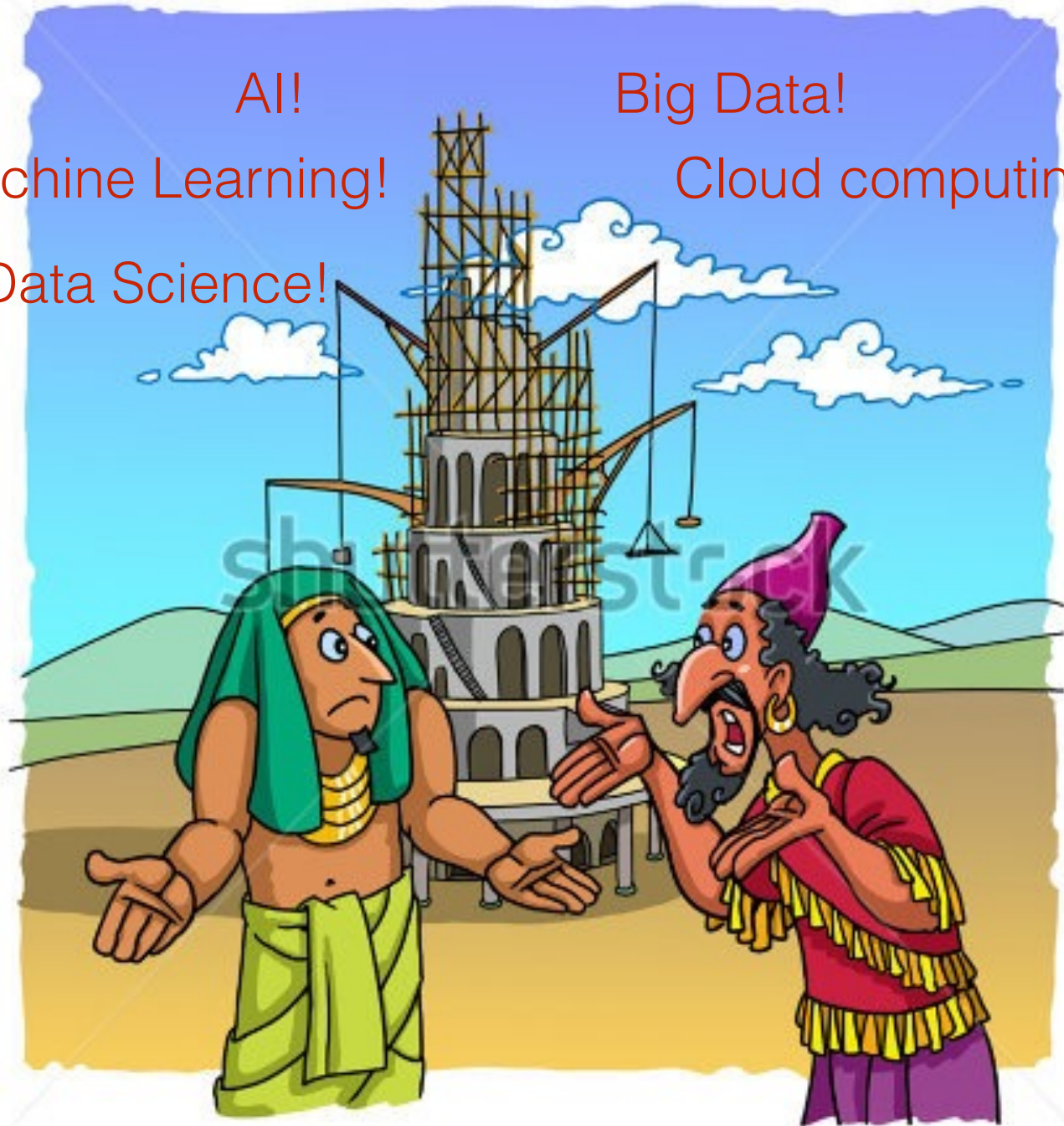


Source: <http://www.kdnuggets.com/2017/05/machine-learning-overtaking-big-data.html>

AI Tower of Babel

AI!
Machine Learning!
Data Science!

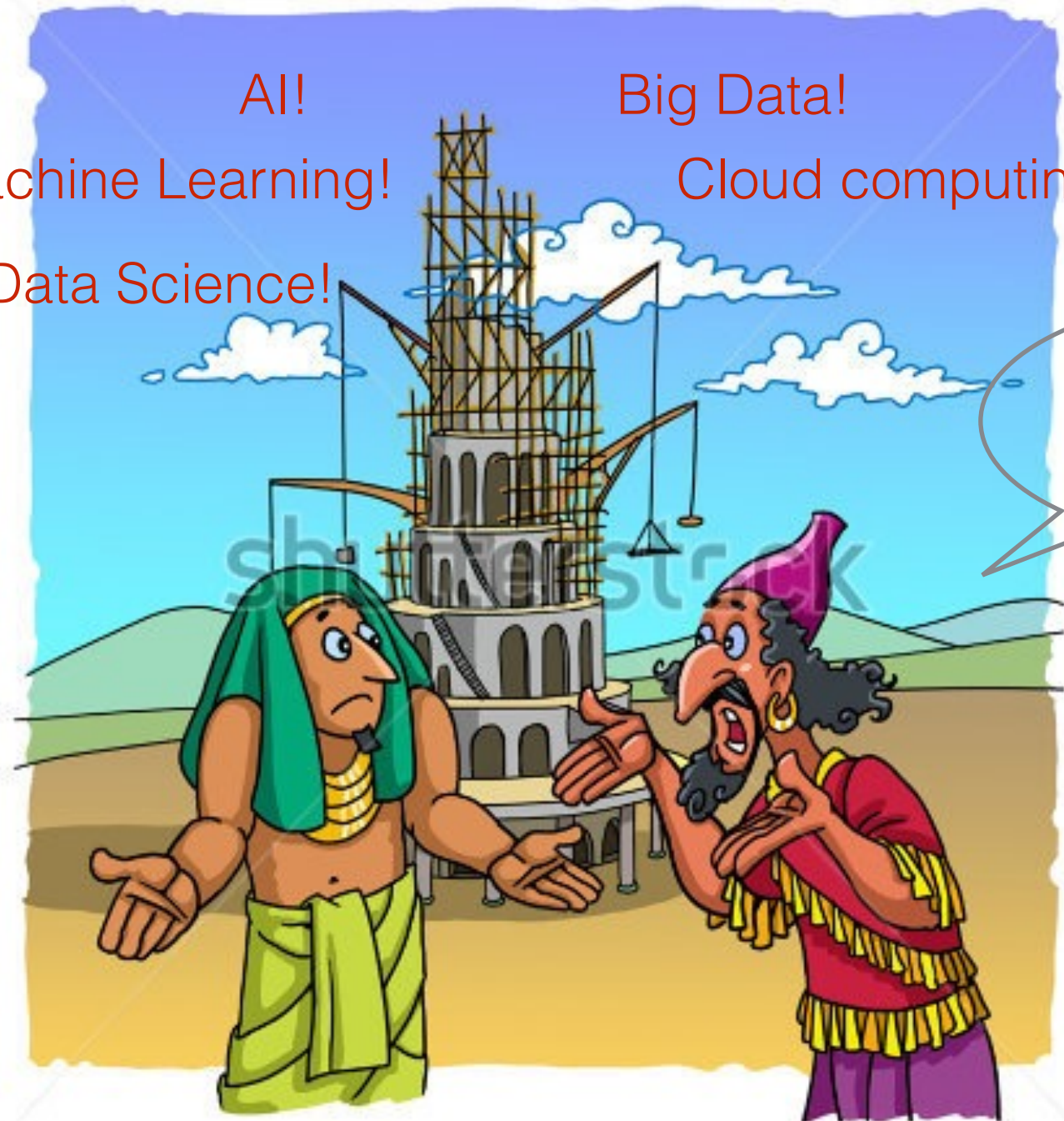
Big Data!
Cloud computing!



AI Tower of Babel

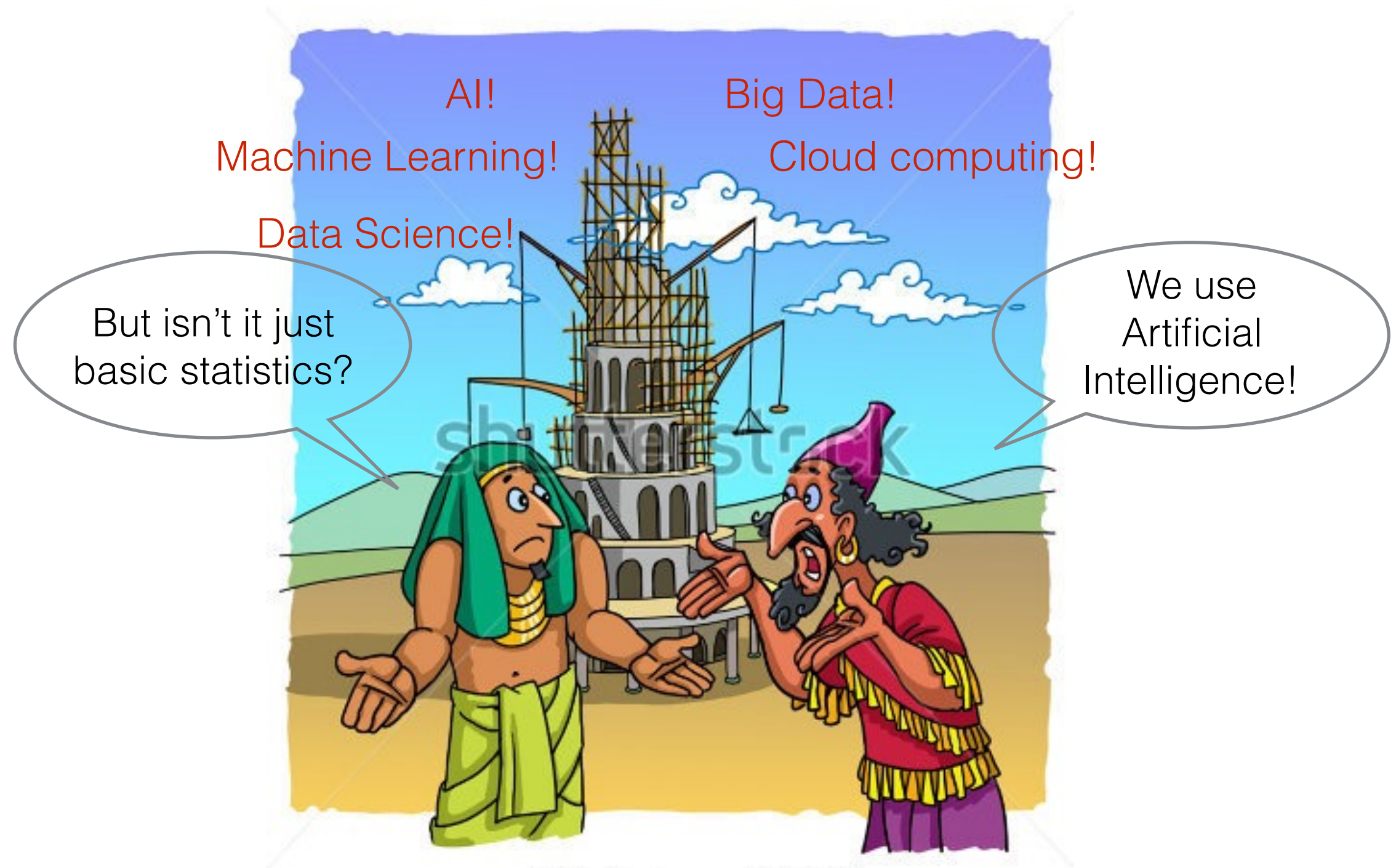
AI!
Machine Learning!
Data Science!

Big Data!
Cloud computing!



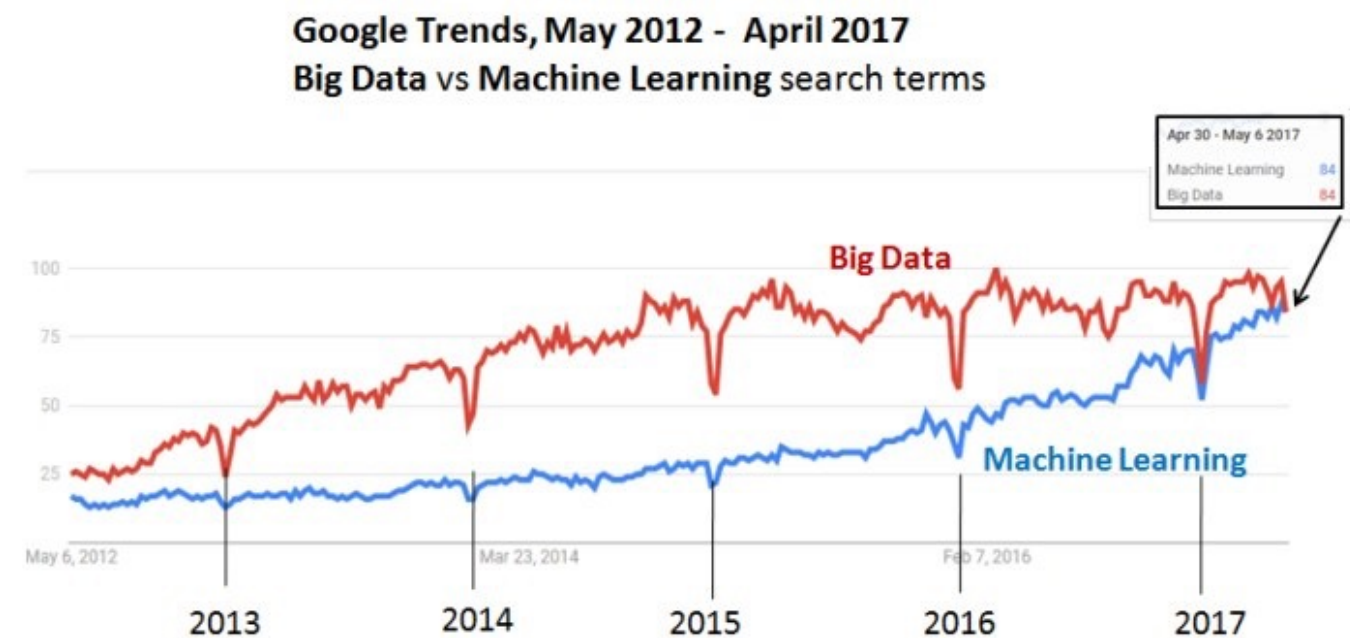
We use
Artificial
Intelligence!

AI Tower of Babel



Buzzwords...

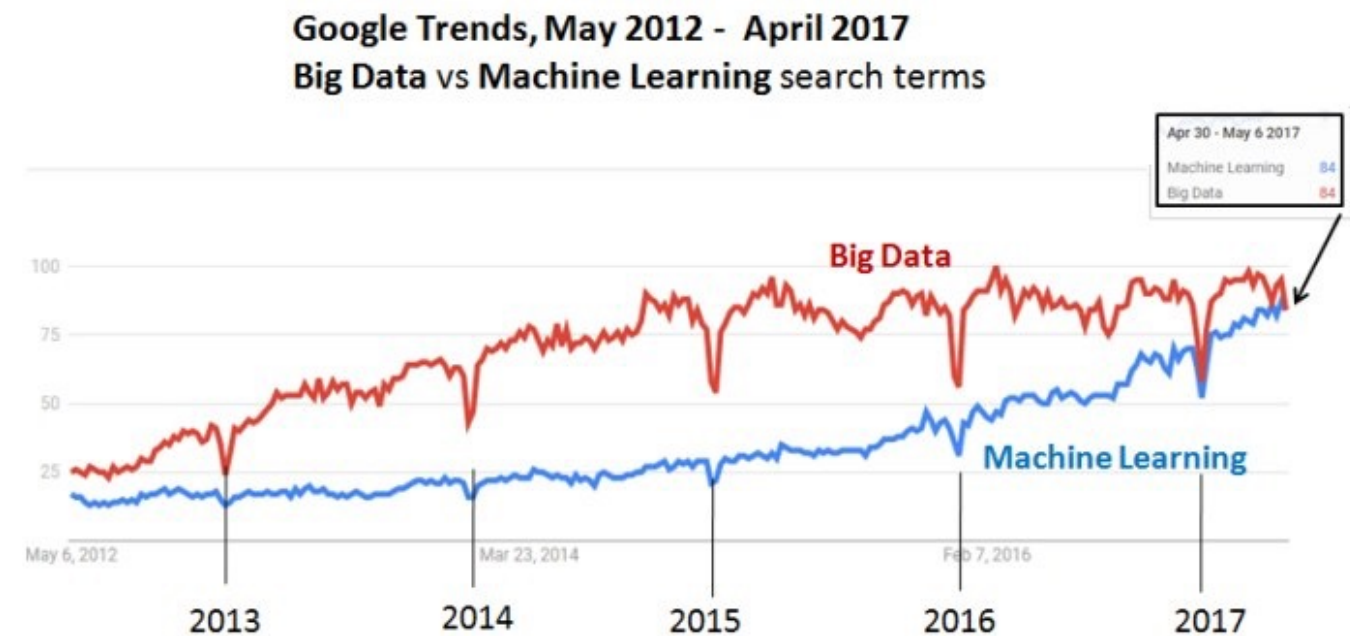
- **Artificial Intelligence (AI)** - machines achieving human-level performance at specific tasks (credit approval, face recognition, speech recognition etc.)



Source: <http://www.kdnuggets.com/2017/05/machine-learning-overtaking-big-data.html>

Buzzwords...

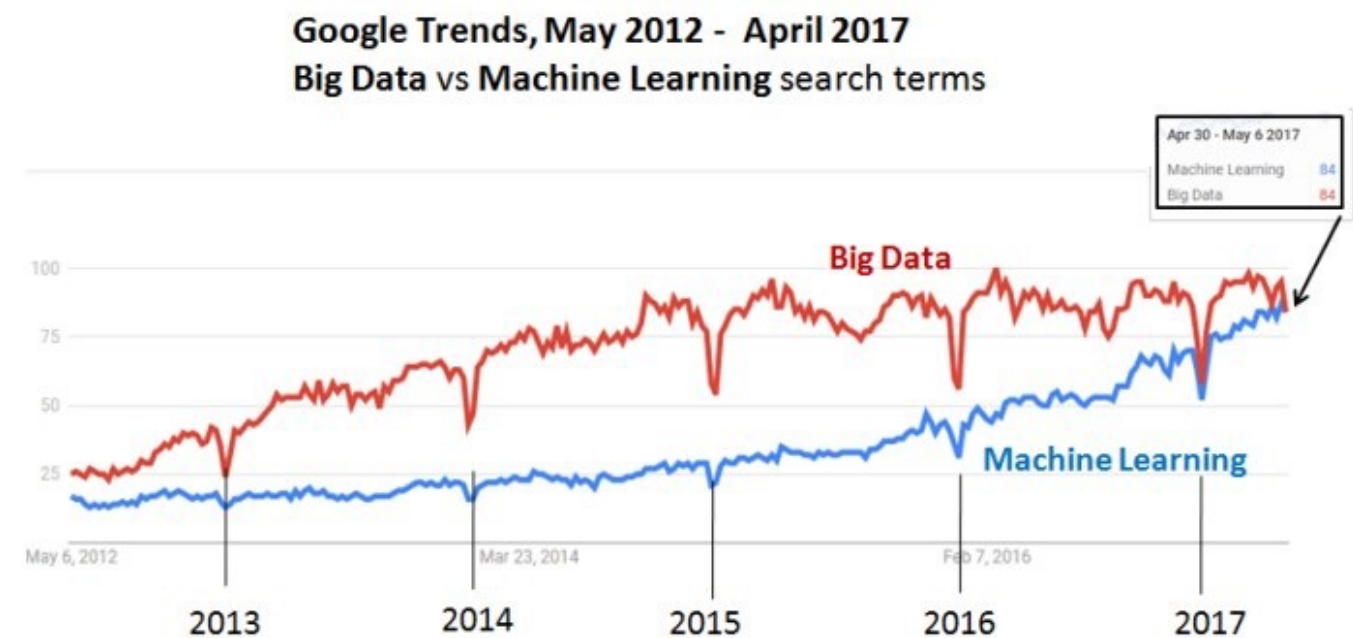
- **Artificial Intelligence (AI)** - machines achieving human-level performance at specific tasks (credit approval, face recognition, speech recognition etc.)
- **Machine Learning (ML)** - (a **heart of modern AI**) algorithms that teach a computer to perform a task from experience



Source: <http://www.kdnuggets.com/2017/05/machine-learning-overtaking-big-data.html>

Buzzwords...

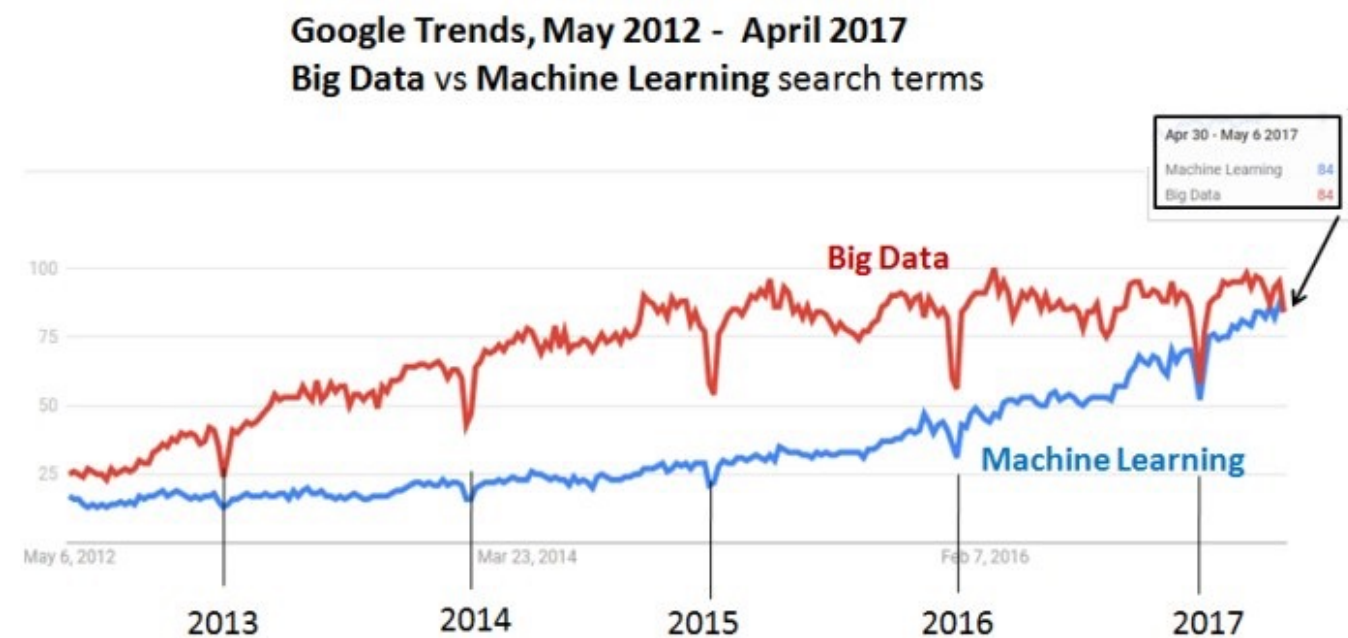
- **Artificial Intelligence (AI)** - machines achieving human-level performance at specific tasks (credit approval, face recognition, speech recognition etc.)
- **Machine Learning (ML)** - (a **heart of modern AI**) algorithms that teach a computer to perform a task from experience
- **Data Mining (DM)** - uses ML to find pattern in data in a quest for actionable data



Source: <http://www.kdnuggets.com/2017/05/machine-learning-overtaking-big-data.html>

Buzzwords...

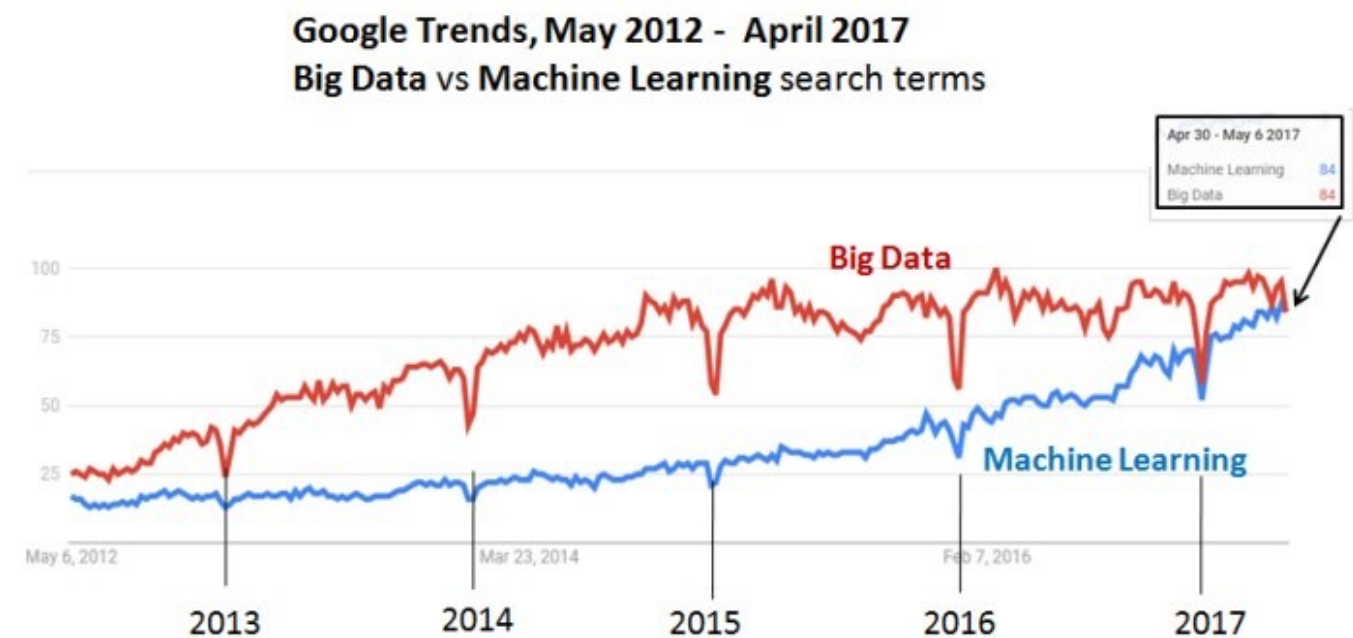
- **Artificial Intelligence (AI)** - machines achieving human-level performance at specific tasks (credit approval, face recognition, speech recognition etc.)
- **Machine Learning (ML)** - (a **heart of modern AI**) algorithms that teach a computer to perform a task from experience
- **Data Mining (DM)** - uses ML to find pattern in data in a quest for actionable data
- **Big Data (BD)** - DM on large sets of structured (numerical) and unstructured (text, speech) data



Source: <http://www.kdnuggets.com/2017/05/machine-learning-overtaking-big-data.html>

Buzzwords...

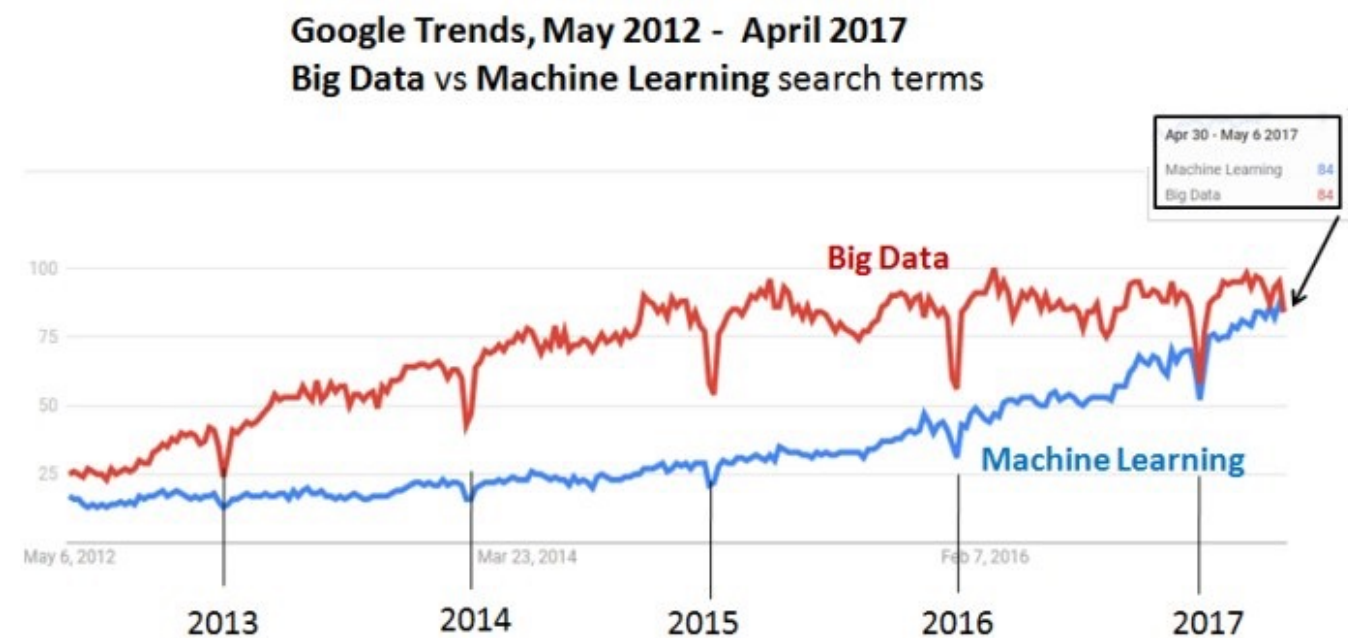
- **Artificial Intelligence (AI)** - machines achieving human-level performance at specific tasks (credit approval, face recognition, speech recognition etc.)
- **Machine Learning (ML)** - (a **heart of modern AI**) algorithms that teach a computer to perform a task from experience
- **Data Mining (DM)** - uses ML to find pattern in data in a quest for actionable data
- **Big Data (BD)** - DM on large sets of structured (numerical) and unstructured (text, speech) data
- **Data Science (DS)** - uses statistics and ML to monetize information in Big Data



Source: <http://www.kdnuggets.com/2017/05/machine-learning-overtaking-big-data.html>

Buzzwords...

- **Artificial Intelligence (AI)** - machines achieving human-level performance at specific tasks (credit approval, face recognition, speech recognition etc.)
- **Machine Learning (ML)** - (a **heart of modern AI**) algorithms that teach a computer to perform a task from experience
- **Data Mining (DM)** - uses ML to find pattern in data in a quest for actionable data
- **Big Data (BD)** - DM on large sets of structured (numerical) and unstructured (text, speech) data
- **Data Science (DS)** - uses statistics and ML to monetize information in Big Data
- **ML** is a core element of all of the above fields
- **ML** is a way for a computer to learn about the world, much like physics and math for humans
- **Machine Intelligence** = ML/AI



Source: <http://www.kdnuggets.com/2017/05/machine-learning-overtaking-big-data.html>