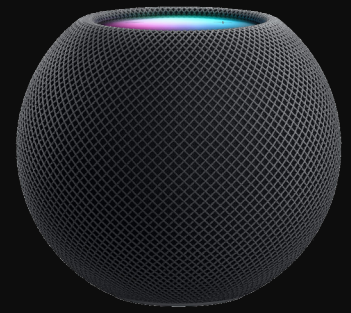
What is Artificial Intelligence?

AI is software that:

1. Perceives its environment;
2. Predicts specific outcomes;
3. Learns from every interaction;
4. Takes action to achieve its goals;
5. Adapts to new inputs.



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How Soon Is It Coming?

“Take X and Add AI”

“Take AI and Add X”

The business plans of the next 10,000 startups are easy to forecast:

Kevin Kelly, Wired

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Why Now?

Artificial Intelligence is rapidly moving from the laboratory towards business and consumer application.

- AI techniques have existed for decades but there is a surge in innovation and performance with the rapid growth in computational infrastructure, data and sensors.
- Live, interactive, automatically generated, and often self-correcting data that fuels real-time decisions and real-time responses.
- Cloud computing, massively parallel processing and new CPUs are powering AI techniques that simply weren't practical before.

Better Algorithms

Faster Data

Cheaper Computing

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Faster Data ?

Historical data is used to identify patterns that inform future decision-making, while fast data is designed for real-time decisions and real-time responses.

Fast data is the continuous processing of events and data in order to gain instantaneous insight and take instantaneous action.

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The Internet of Things?

"Count what is countable,
measure what is measurable,
and what is not measurable,
make measurable."

Galileo 1564-1642

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Data about Data?

"Information about transactions at some point in time will be more important than the transactions themselves."

Walter Wriston, Former CEO of Citicorp
1955 - 2011

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Some Examples?

amazon web services™

Amazon Machine Learning

- Google Photos uses better algorithms (Deep Learning) to automatically recognize, classify and organize a user's photos.
- Uber uses faster data to know where you are and where you're going because it can capture, analyze, and act on data in real time.
- AWS is providing cheaper computing (GPUs) to power machine learning jobs that require massive amounts of parallel processing power

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What's the Fuss?

- The explosive growth of complex and time-sensitive data enables decisions that can give you a competitive advantage, but these decisions depend on analyzing at a speed, volume, and complexity that is too great for humans.

- AI is filling this gap as it becomes ingrained in the analytics technology infrastructure in industries like health care, financial services, and travel.
  Brad Power, Harvard Business Review

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What Will Change?

Artificial intelligence is animating the world the internet connected and electricity illuminated.

Chris Matys, Ignite AI

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Why Should You Care?

Software is undergoing a fundamental shift from doing only what we tell it to do; to learning to sense its environment, make decisions, and take-action.

- Business are racing to cognitize
- Early movers are gaining advantage
- Disrupt or be disrupted

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Why Not Wait?

- The power of ~~software~~ AI is that once it is ~~written~~ trained,
- AI can be copied with nearly no cost.
- That's why ~~software~~ AI will disrupt industries.

Jeff Krammer (Revised)

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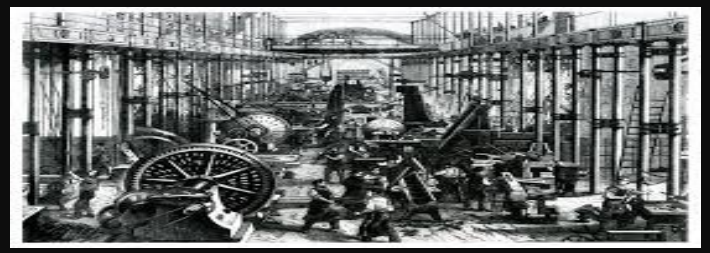
A New Age?

Industrial Age 19th Century	Information Age 20th Century	2nd Machine Age 21ST Century
Machines take away the dirty work.	Machines take away the dull and routine work.	Machines take away decisions.
Industrial equipment from looms to the cotton gin.	Automated interfaces from kiosks to call centers.	Intelligent systems from airfare pricing to health diagnostics.
Relieves humans of onerous manual labor.	Relieves humans of routine transactions and clerical chores.	Make better choices than humans reliably and fast..



Thomas H. Davenport and Julia Kirby, Beyond Automation

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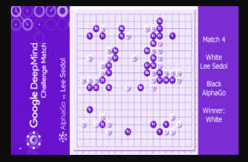
Artificial Intelligence Today?



Adaptive
"Applications"

Changes when exposed to new input / feedback data to evolve to new uses

Anticipates
"Outcomes"

Predictions are the foundational capability of Artificial Intelligence

Automated
"Processes"

Perceives through sensors & acts through actuators to achieve goals

Active
"Learning"

Continuous, reinforced, prioritized, and / or human-assisted learning

Assistive
"Agents"

Delegate work that was traditionally done via other software

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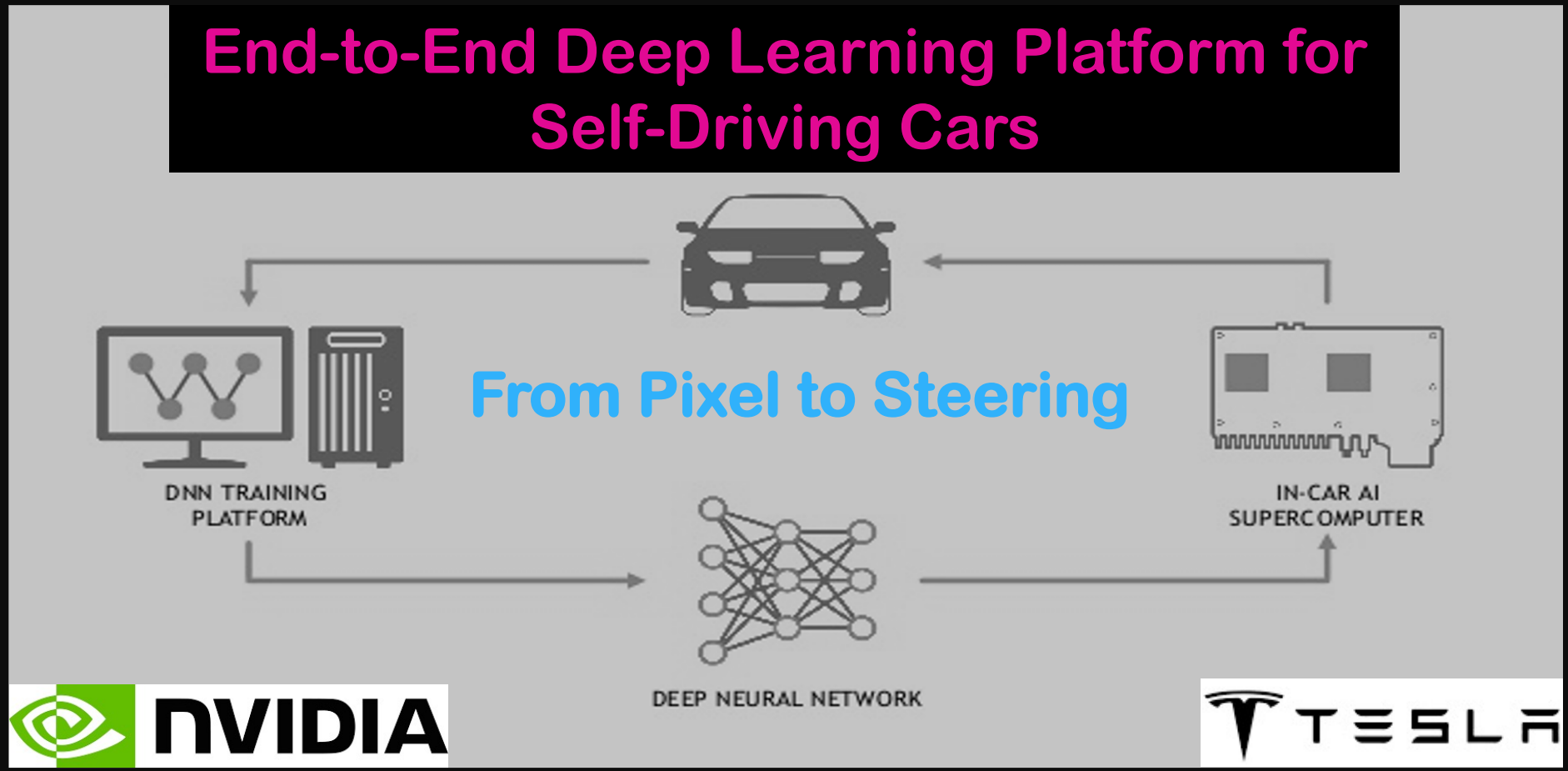
An Example?



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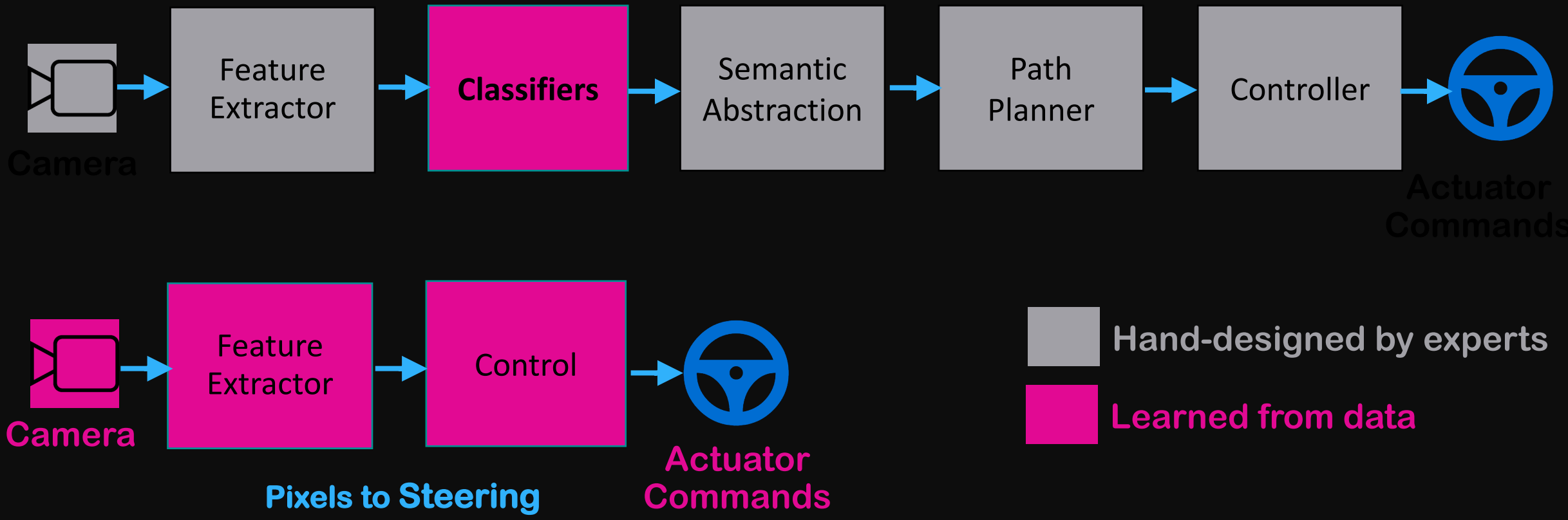
What's Different?



THANK YOU

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