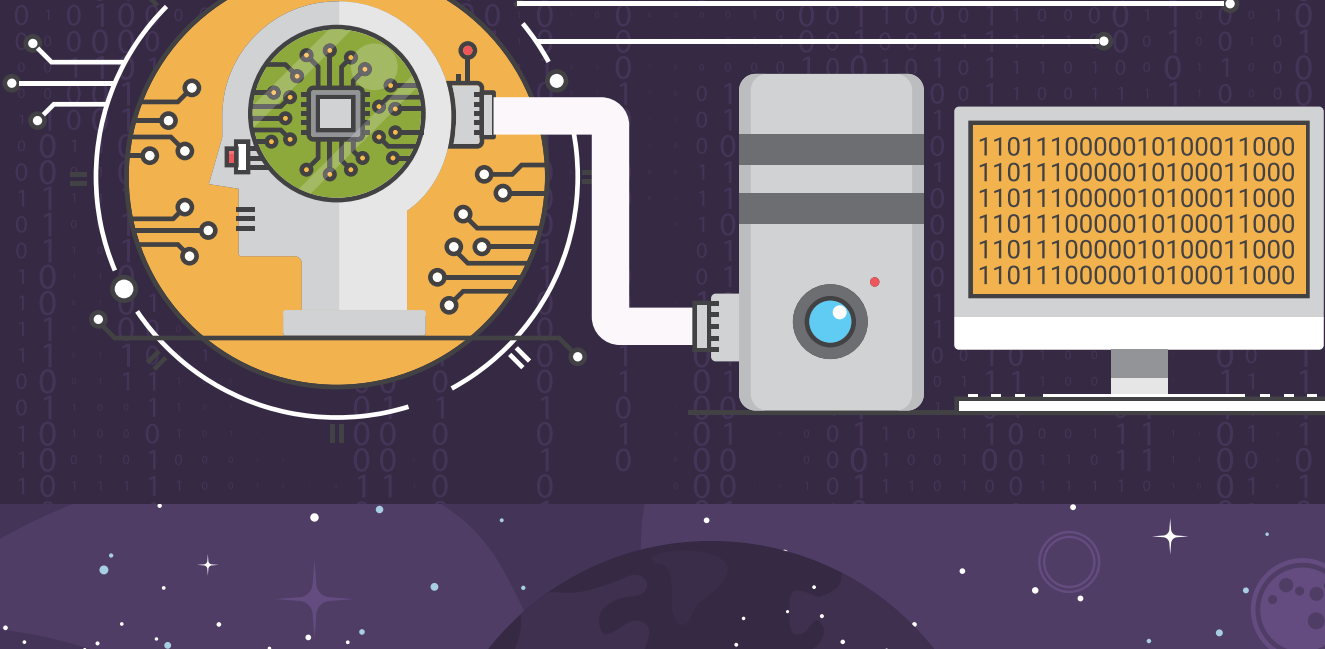


Intro MACHINE LEARNING

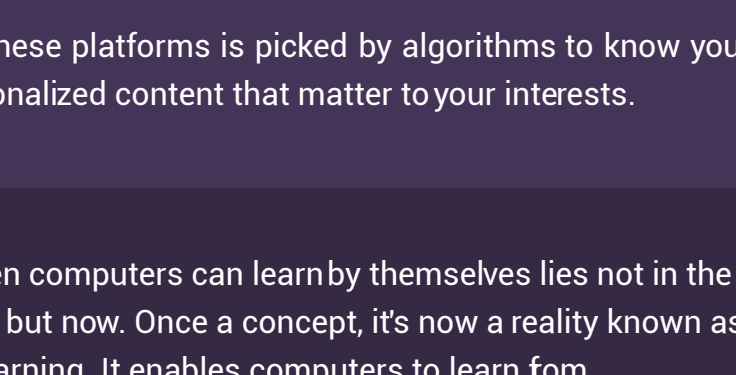
The How, What, and Why, of the World's Most Disruptive Technology



Did you know that our world generates approximately **2.5 quintillion bytes** of data each day?

Burgeoning internet users, social media usage, emails, digital services, and the rise of the Internet of Things, have contributed to this massive influx of data. So, the question is, how can we utilize this data to extract value? The answer: **Machine Learning**

Have you ever thought why content delivery and streaming platforms keep giving you content that you prefer?

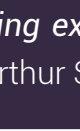


The trail of data left over while you use these platforms is picked by algorithms to know your likes and dislikes, which then deliver personalized content that matter to your interests.

DIGGING DEEP INTO MACHINE LEARNING

An age when computers can learn by themselves lies not in the near future, but now. Once a concept, it's now a reality known as machine learning. It enables computers to learn from interactions and data to generate insights.

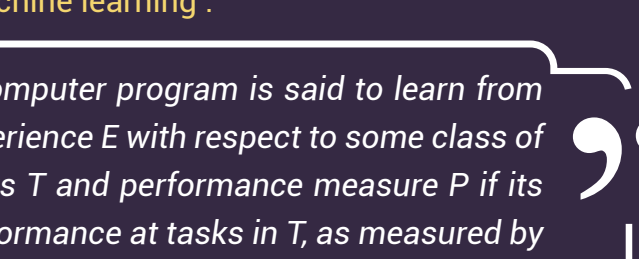
Defining Machine Learning :



Machine Learning : Field of study that gives computers the ability to learn without being explicitly programmed.

- Arthur Samuel

Coined by Arthur Samuel, a pioneering figure in AI and ML back in 1959.



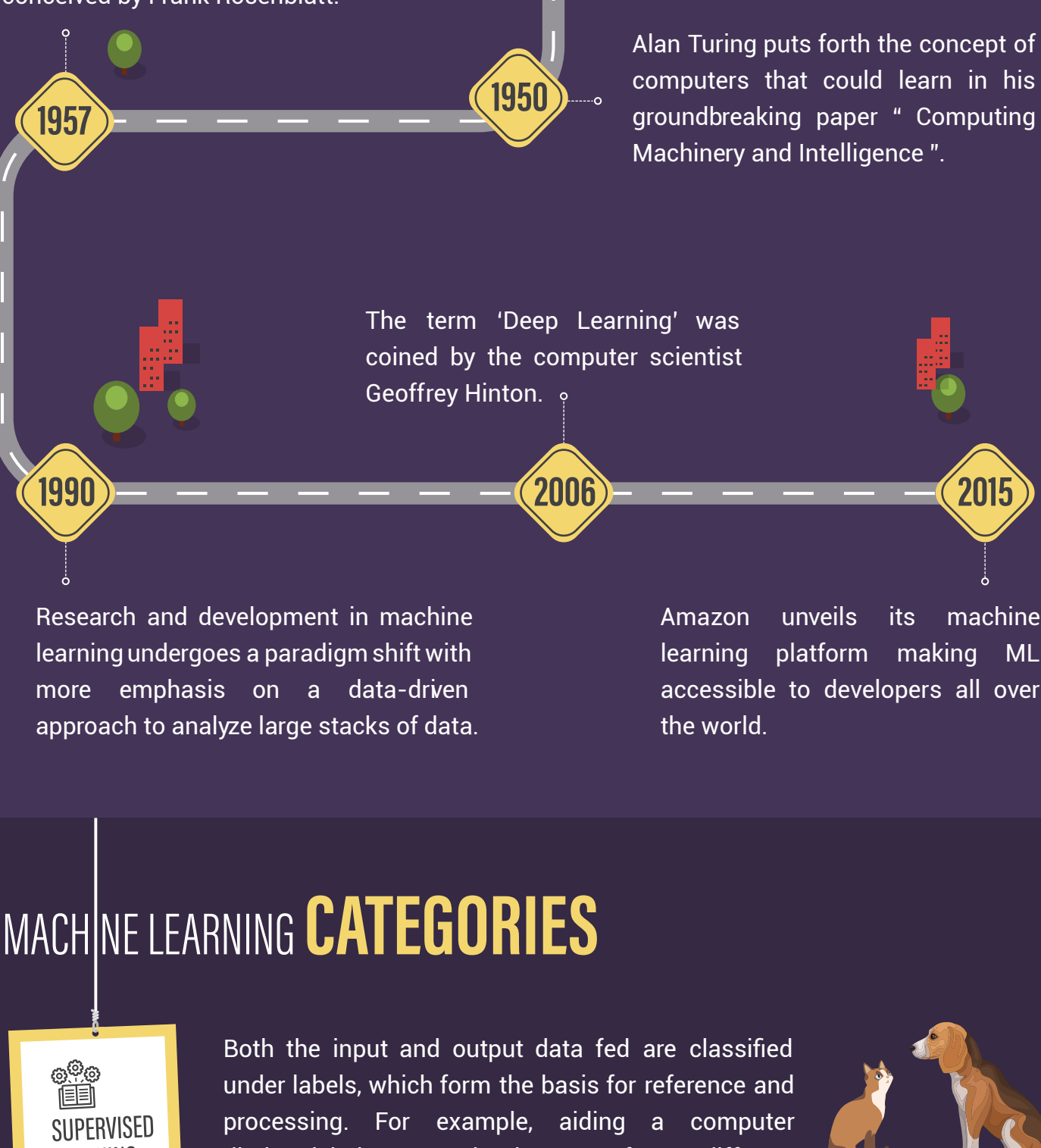
Yet another improvised definition of machine learning :

A computer program is said to learn from experience E with respect to some class of tasks T and performance measure P if its performance at tasks in T, as measured by P, improves with experience E.

- Tom M. Mitchell, Computer Scientist

THE MACHINE LEARNING TIMELINE

From content recommendations to intelligent business processes machine learning has brought far-reaching changes into our lives. One could trace its roots centuries back where the groundwork was laid much before Charles Babbage made breakthroughs in computing.



MACHINE LEARNING CATEGORIES

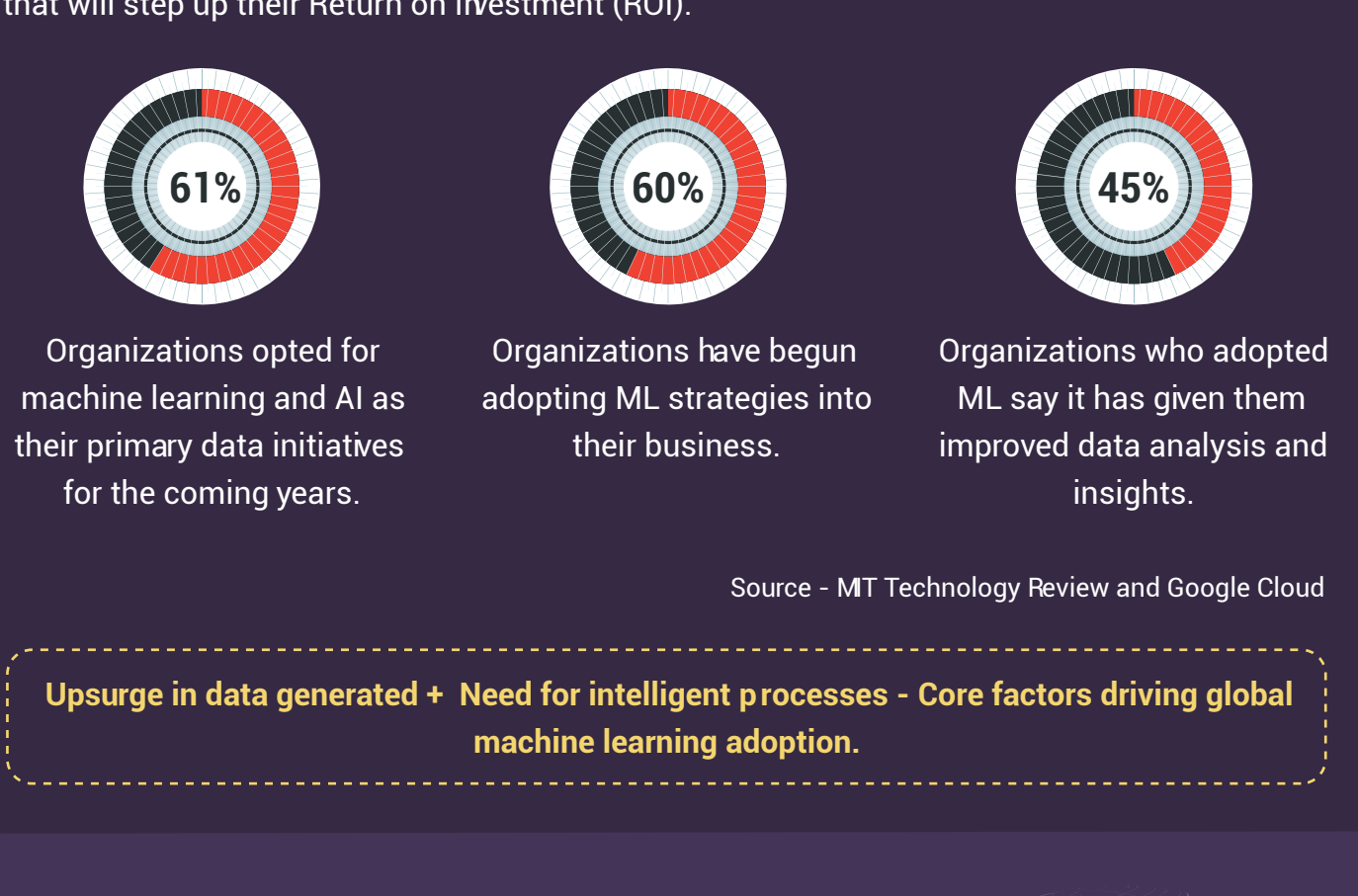
- SUPERVISED LEARNING**: Both the input and output data fed are classified under labels, which form the basis for reference and processing. For example, aiding a computer distinguish between the images of two different things, like cats or dogs.
- UN SUPERVISED LEARNING**: Involves supplying large quantities of data to the system without labels for sorting out and processing automatically. Requires no training and used for more complex functions like language processing and image recognition.
- REINFORCEMENT LEARNING**: Analyzes and learns from its interactions with the environment. The algorithms learn and train themselves through a continuous process of trial and error. Its applications include self-driving cars to board games.

MACHINE LEARNING FINDS USE IN A MYRIAD OF APPLICATIONS

The application of machine learning extends to diverse disciplines. Leveraging big data stacks, machine learning can deliver valuable insights to assist in creating data-driven decisions and intelligent processes.

- Product Recommendations
- Enterprise Computing and Intelligence
- Content Recommendations
- Medical Research and Diagnosis
- Self Driving Vehicles
- Fraud Detection
- Search Engines
- Social Media

MACHINE LEARNING BREAKS NEW GROUND IN COMPUTING



Upsurge in data generated + Need for intelligent processes - Core factors driving global machine learning adoption.

MACHINE LEARNING - A GLIMPSE INTO THE FUTURE

What it holds for the future is a whole range of intelligent activity based entirely on data. You could shrink the world totally into a large data packet given the number of devices plugging in and generating information every day.

- Google's AlphaGo program represents a quantum leap of machine learning, beating even professional players in the ancient strategy board game of Go.
- This is similar to what IBM's Deep Blue accomplished when it beat the world chess champion Gary Kasparov in 1997.

PREDICTIONS HINT AT AN ML DISRUPTION IN THE NEAR FUTURE

- The predictions points to an increasing prevalence of machine learning with more applications integrating the very technology.
- New hardware, compliant and powerful enough to handle complex algorithms and big data, will become available.
 - More businesses will shift to intelligent processes and operations to drive the efficiency they look for.
 - Natural Language Processing will advance to the point where it clearly mimics humans as it happened at the Google Duplex demo at the I/O, 2018.
 - ML algorithms will constantly retrain and gather data to bring better insights for solving complex challenges.
- With the exponential development witnessed over the past few years, we can readily sum up the incredible worth of machine learning and intelligent computing in times to come.
- Machine learning is becoming more sophisticated with every passing year. And, we are yet to see its full potential—beyond self-driving cars, fraud detection devices, or retail trends analyses.*
- Wei Lei, Vice President and General Manager, Intel Corporation

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