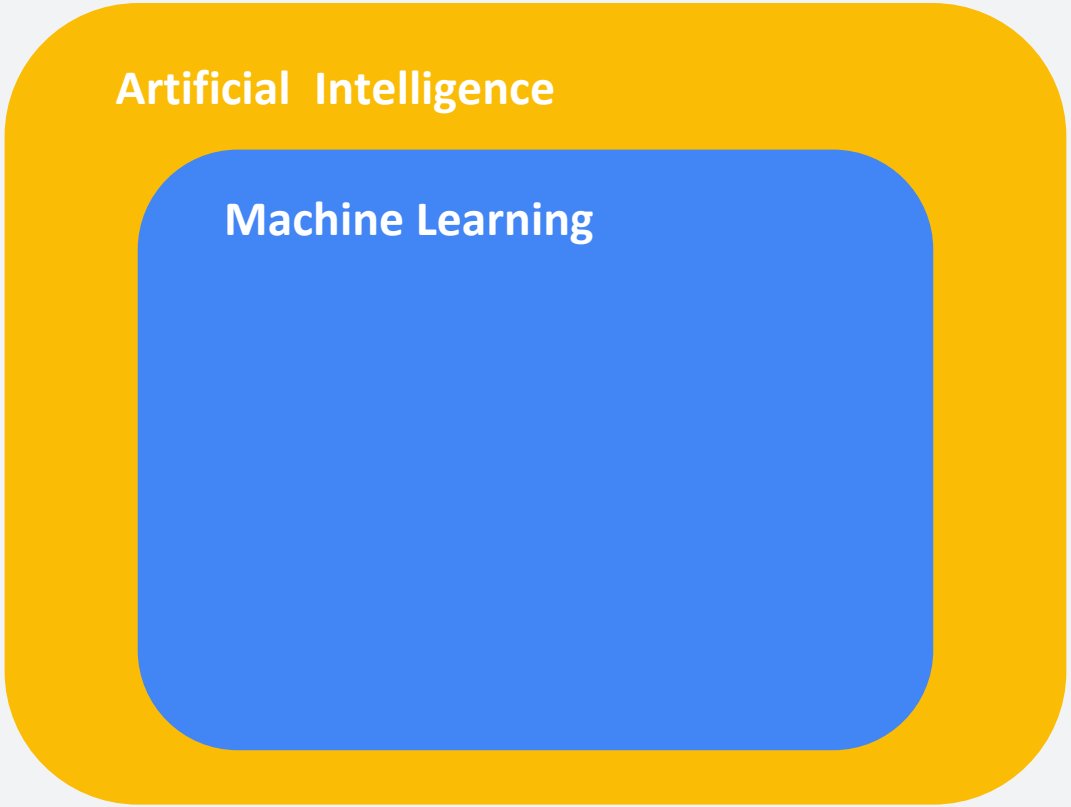
ML Coding Practice
Lecture 1-1
Introduction

Prof. Jongwon Choi
Chung-Ang University
Fall 2022

What is Machine Learning?

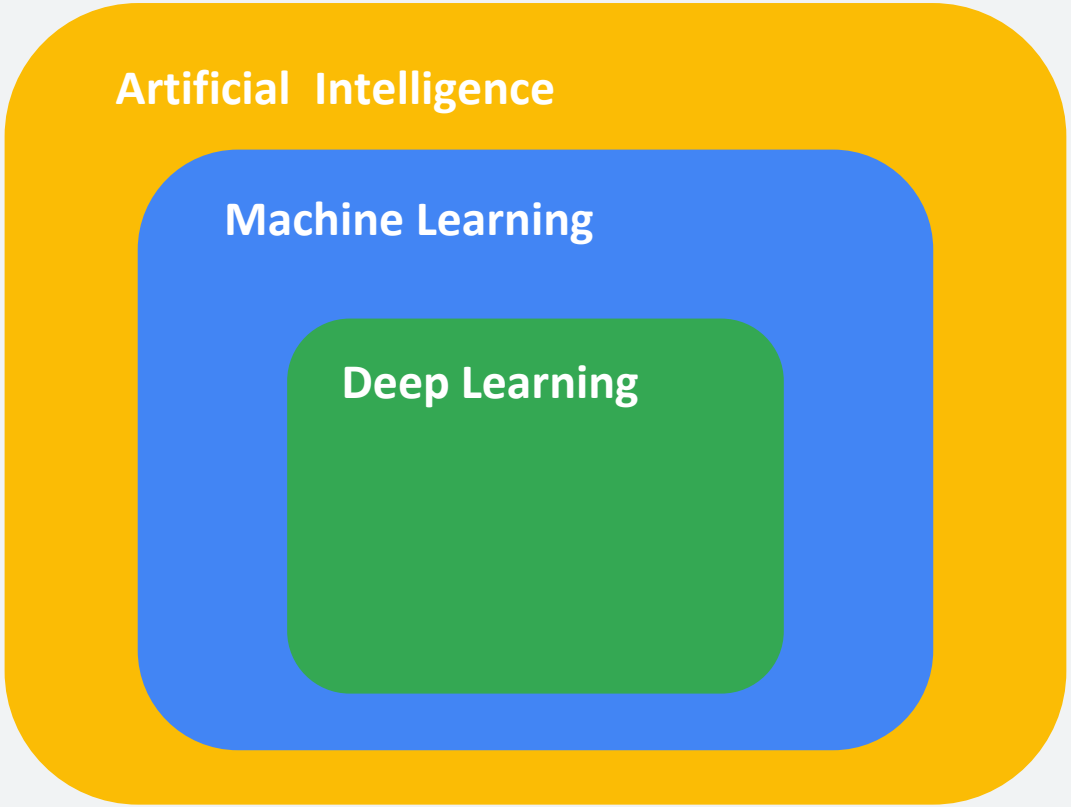
1. **Machine Learning** is a subfield of **Artificial Intelligence** focused on developing algorithms that learn to **solve problems by analyzing data for patterns**



***** Slides from Tiny Machine Learning by**
Vijay Janapa Reddi, Laurence Moroney, Pete Warden, and Lara Suzuki

What is (Deep) Machine Learning?

1. Machine Learning is a subfield of Artificial Intelligence focused on developing algorithms that learn to solve problems by analyzing data for patterns
2. **Deep Learning** is a type of Machine Learning that leverages **Neural Networks** and **Big Data**



Applications of Machine Learning

Applications of Machine Learning

Applications of Machine Learning

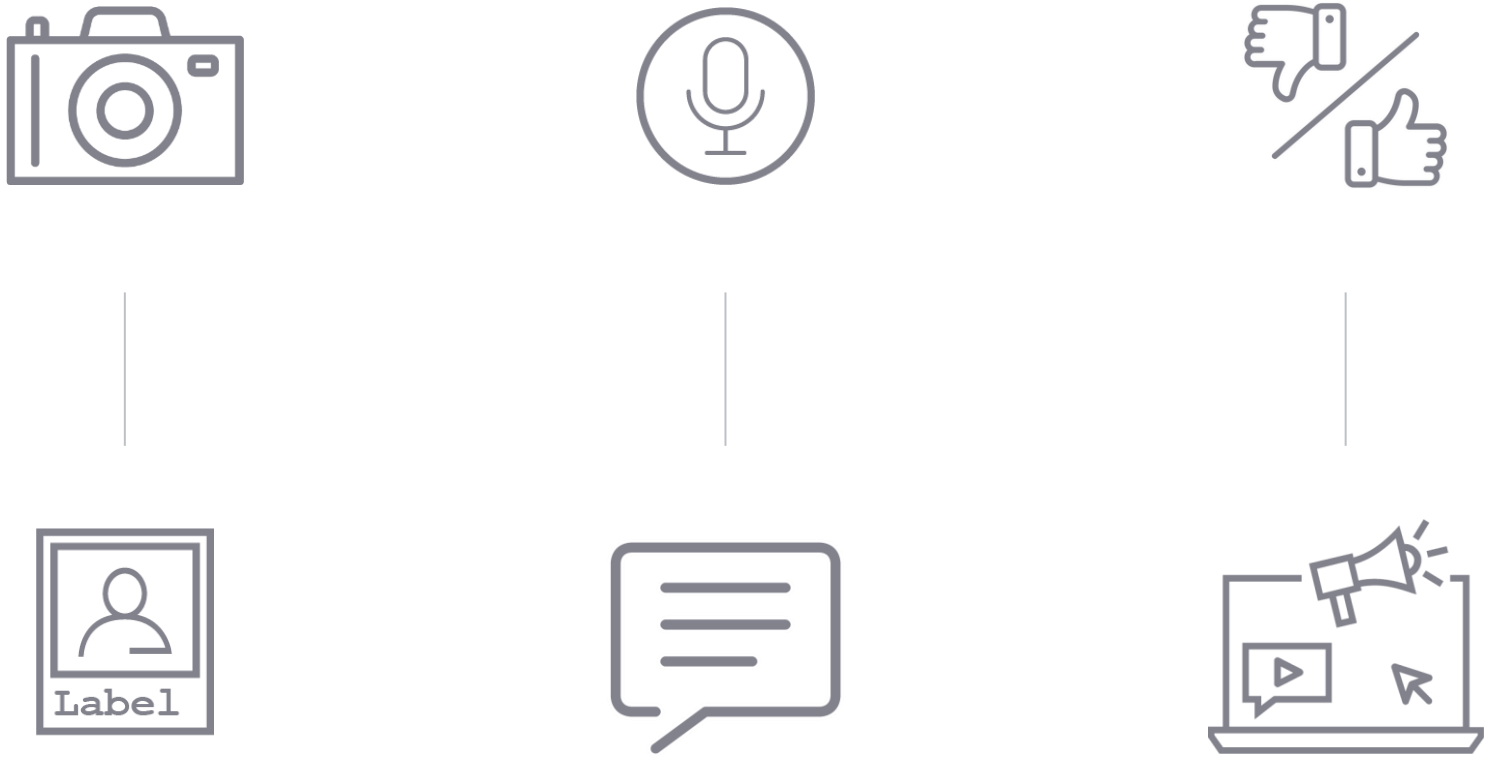
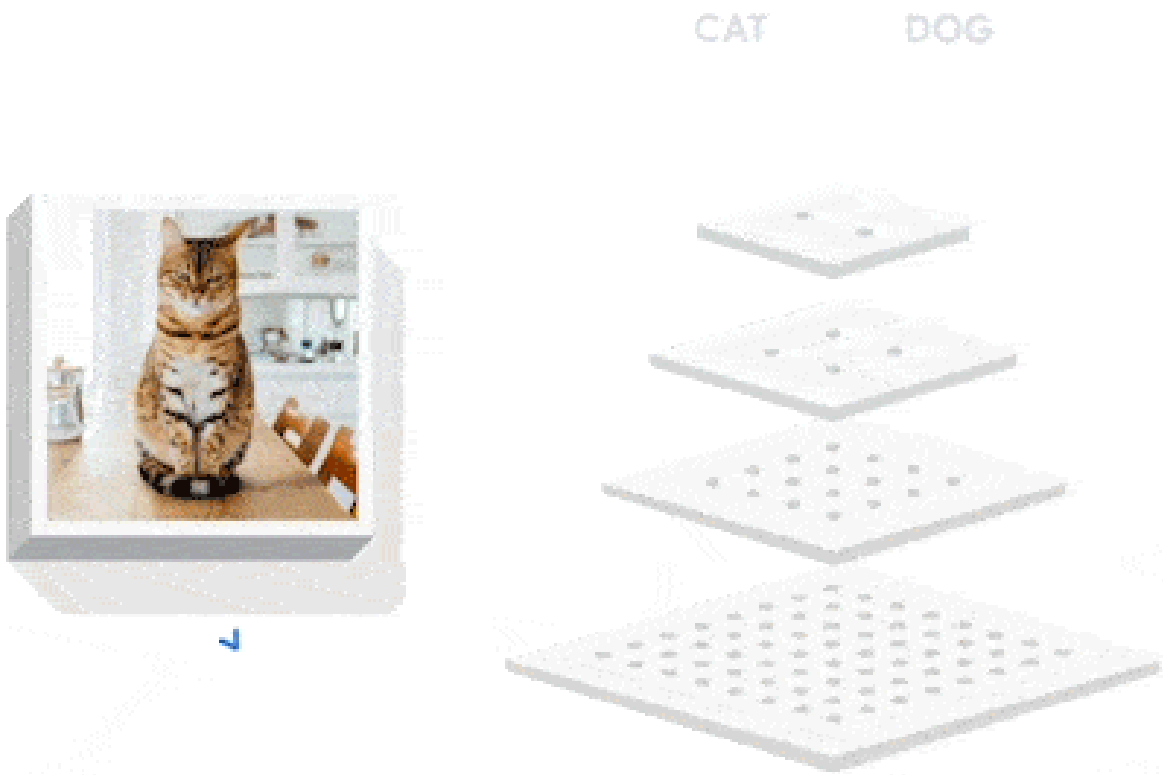
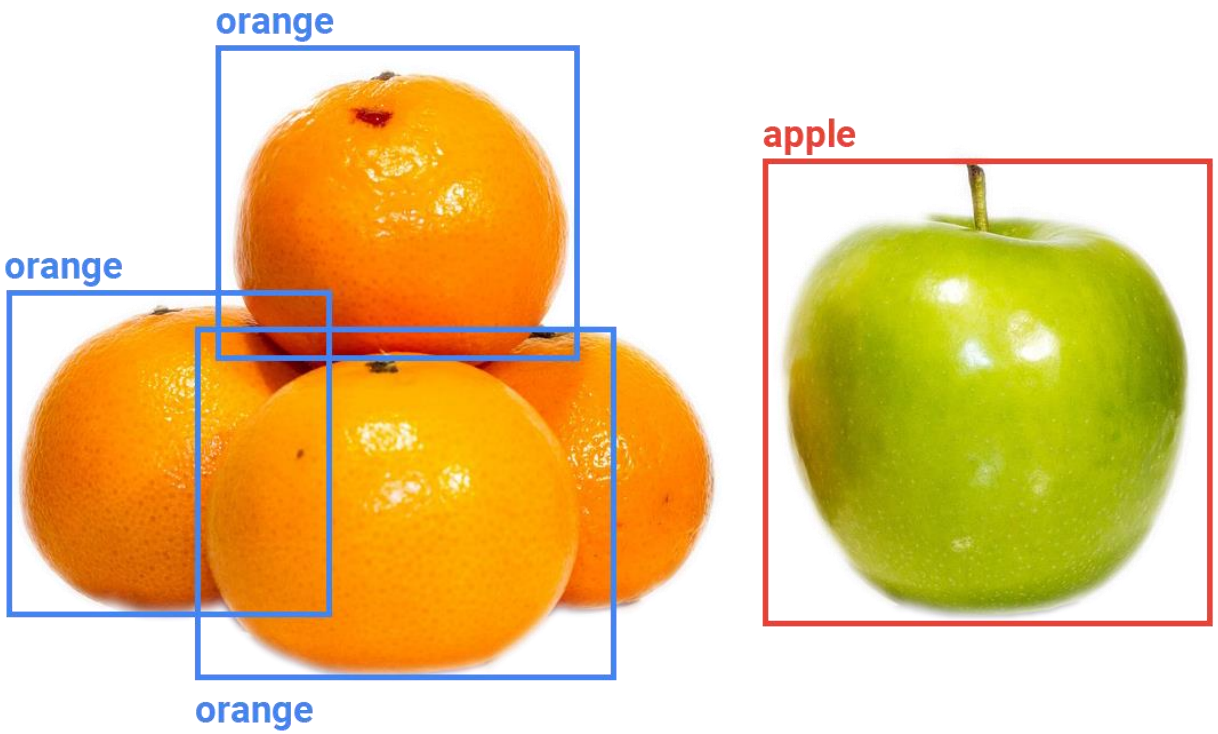


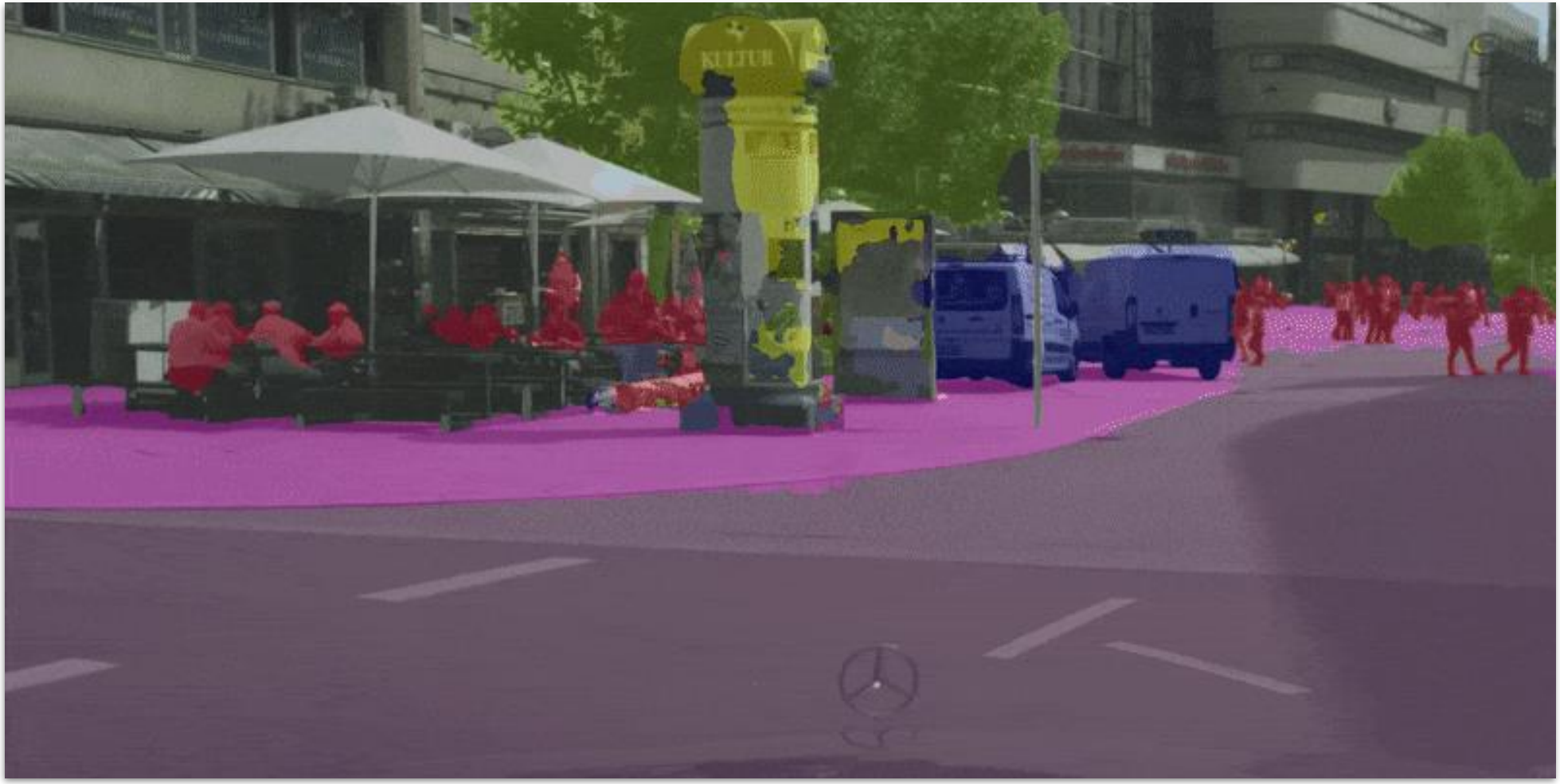
Image Classification



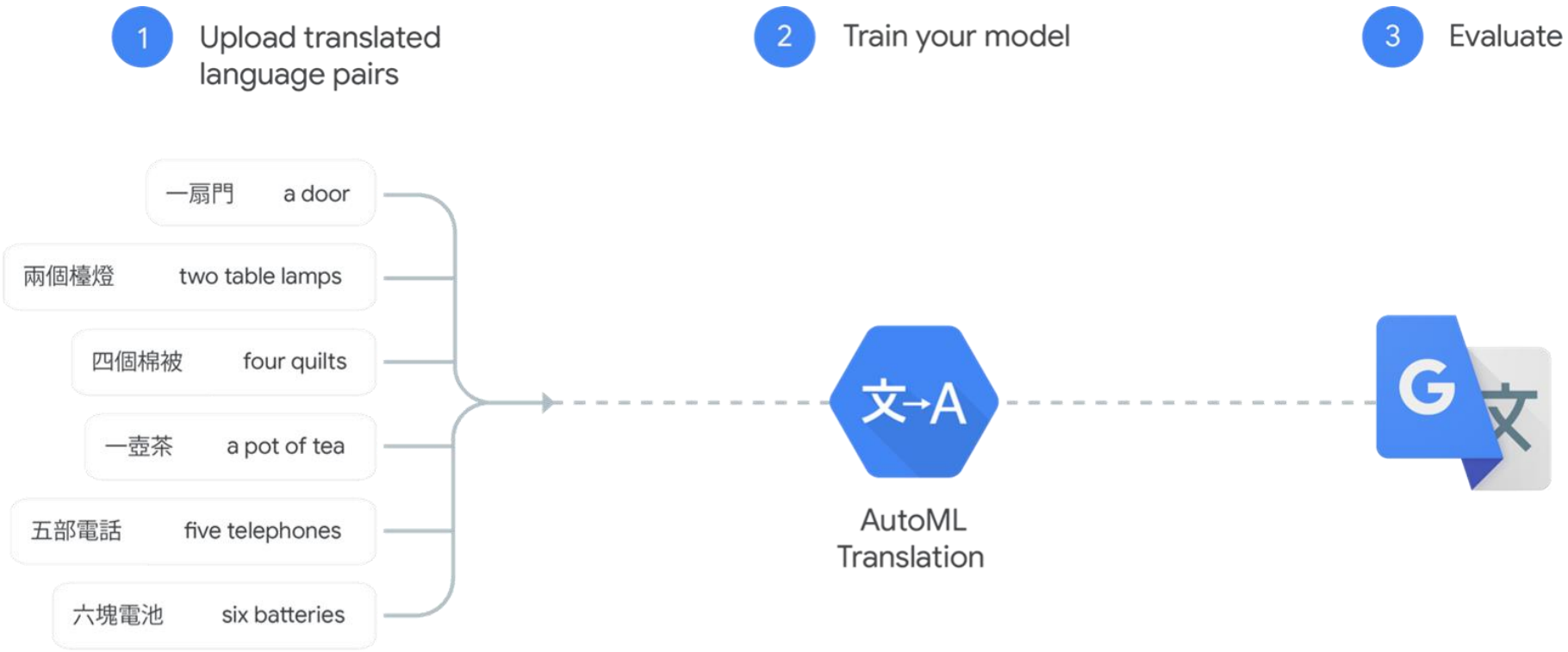
Object Detection



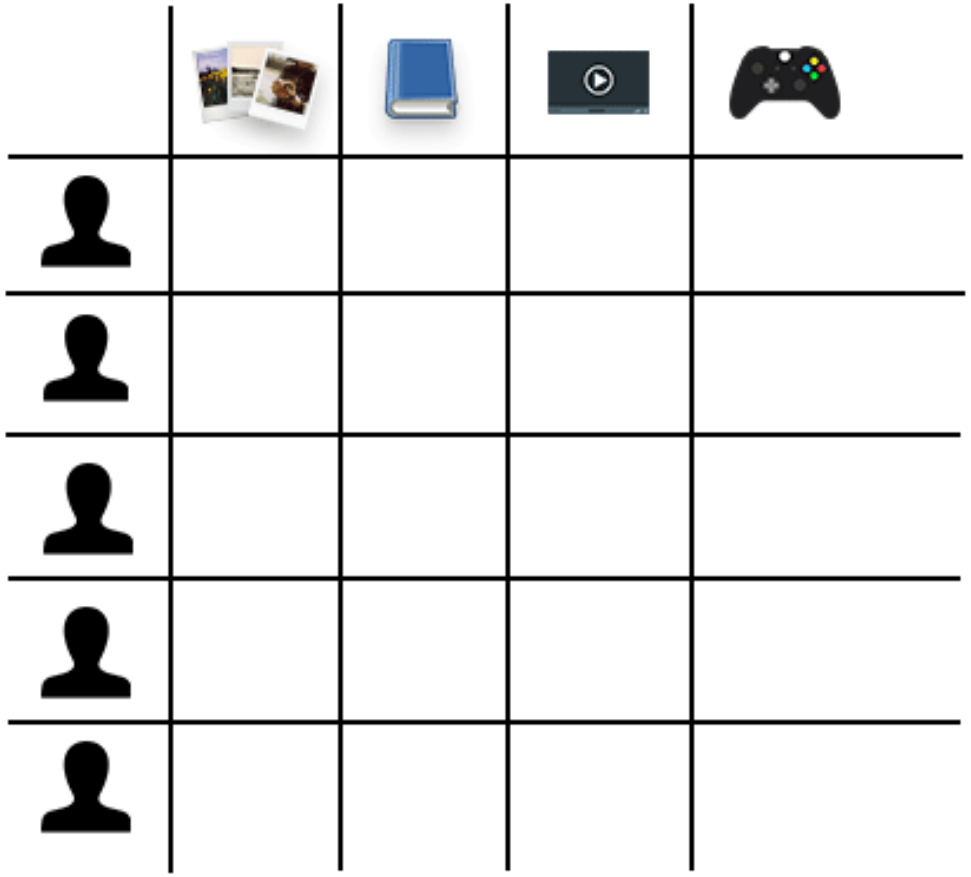
Segmentation



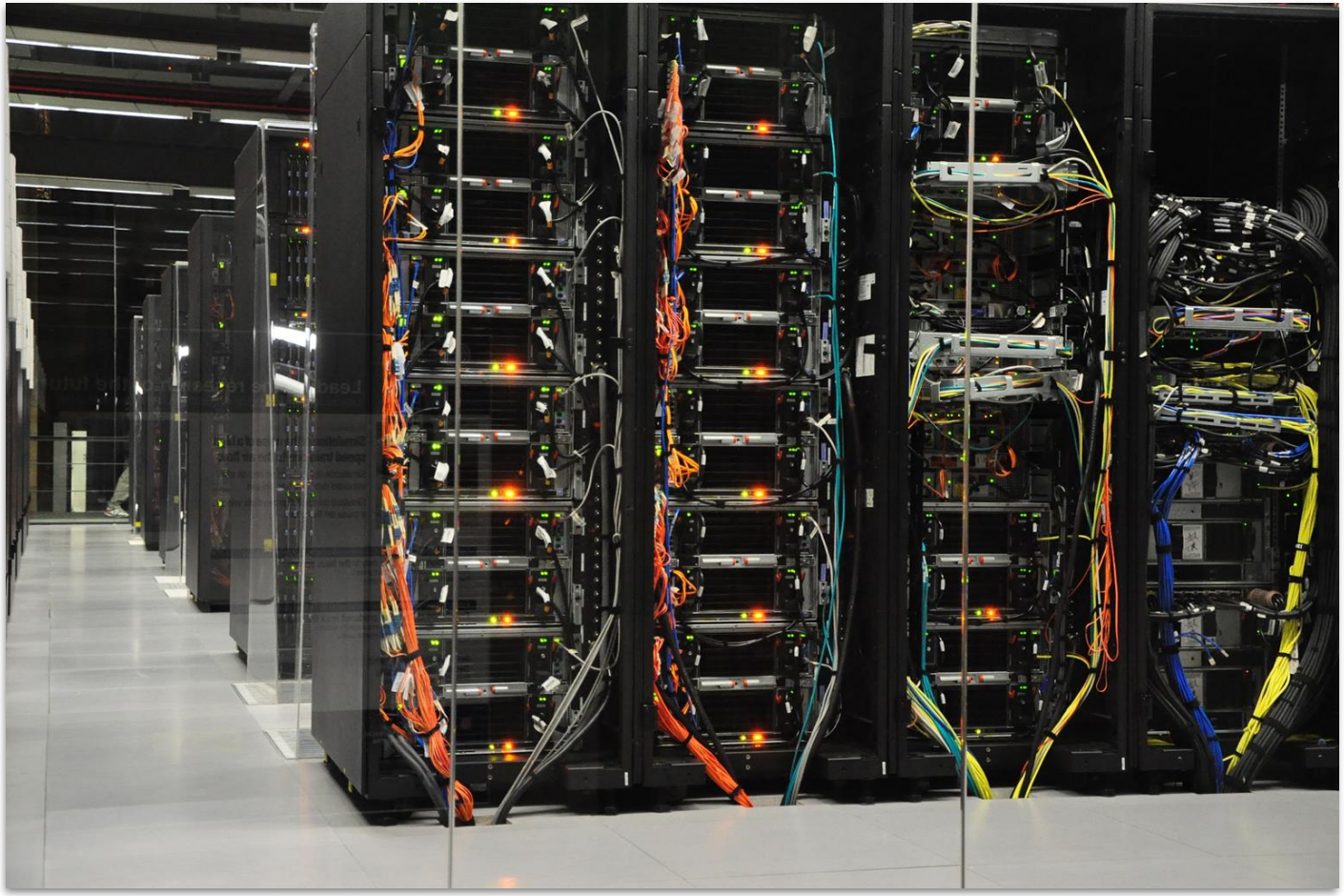
Machine Translation



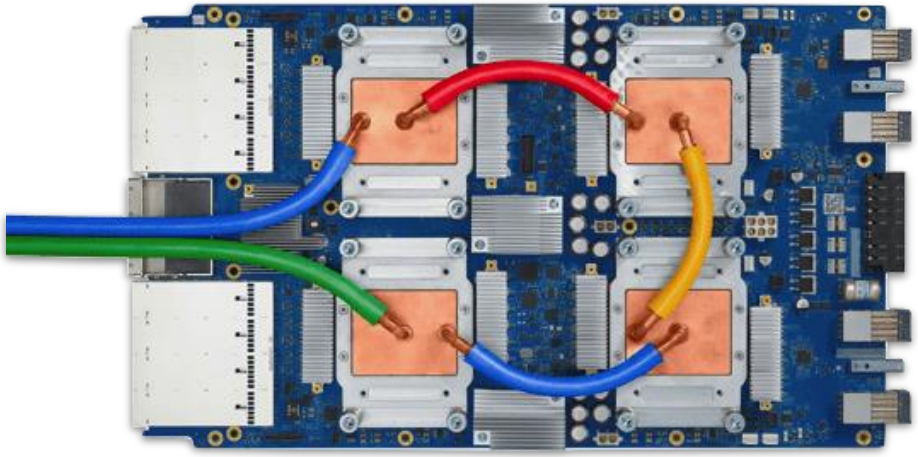
Recommendations



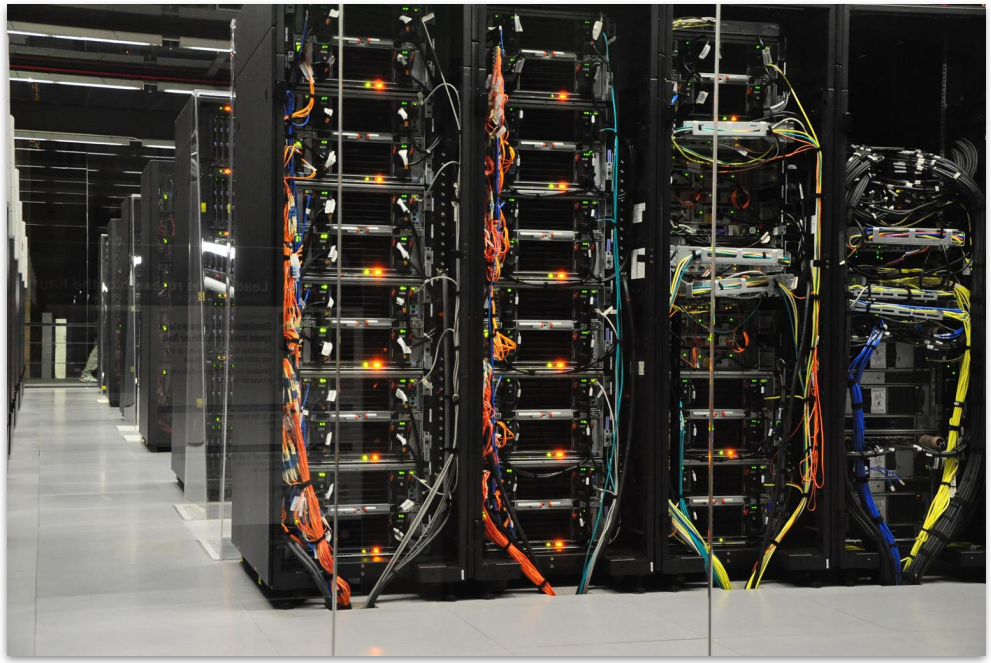
Data Center

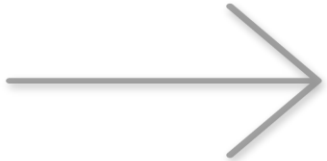


TPUs/GPUs



Bigger Is Not Always Better.






8:00
Dinner with Layla in 30 min
8:30 - 10:00 pm | 50°F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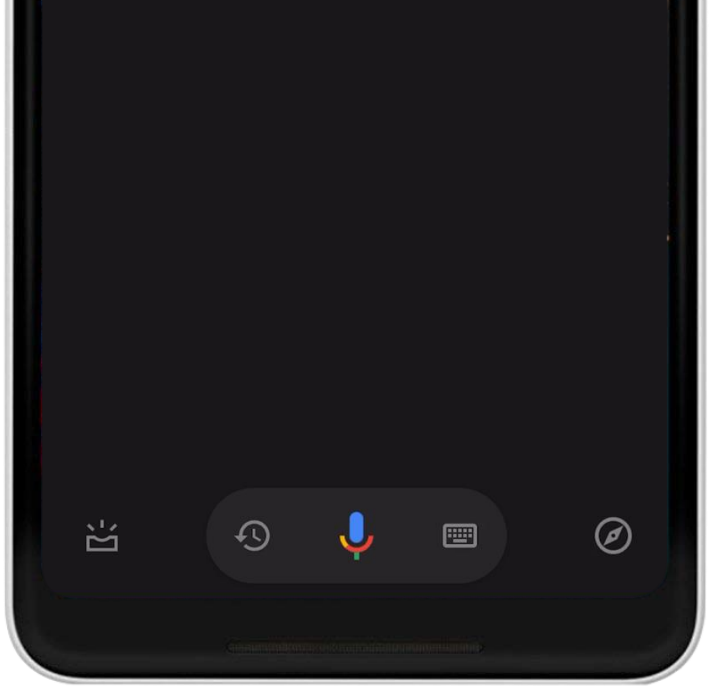


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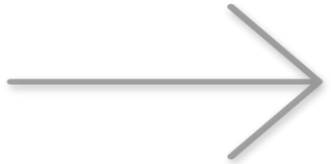
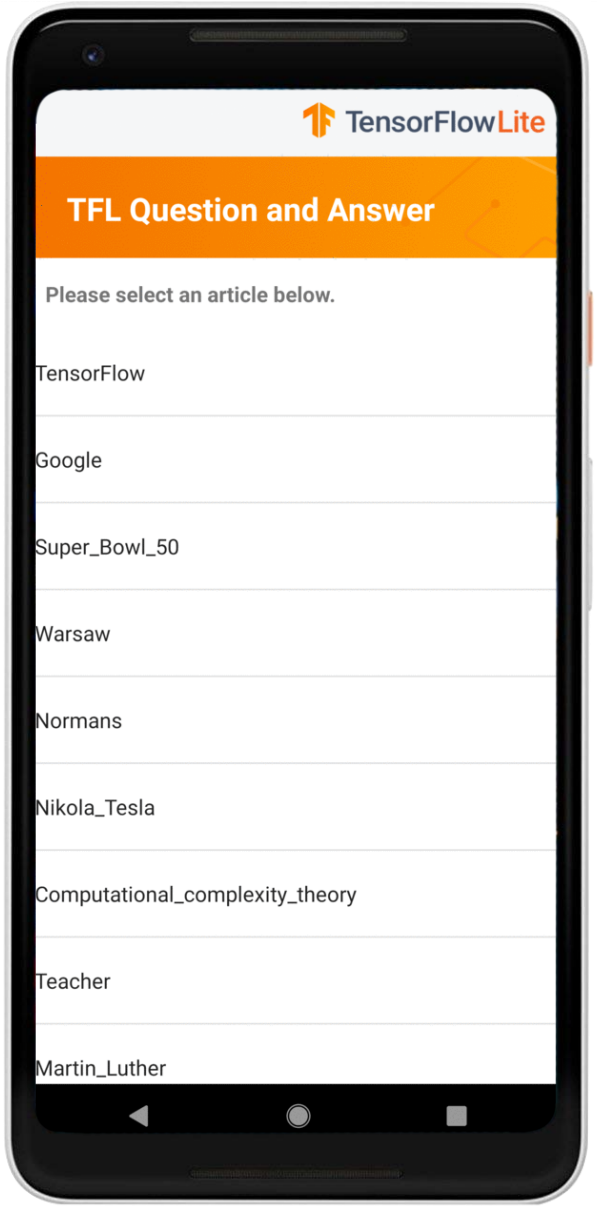
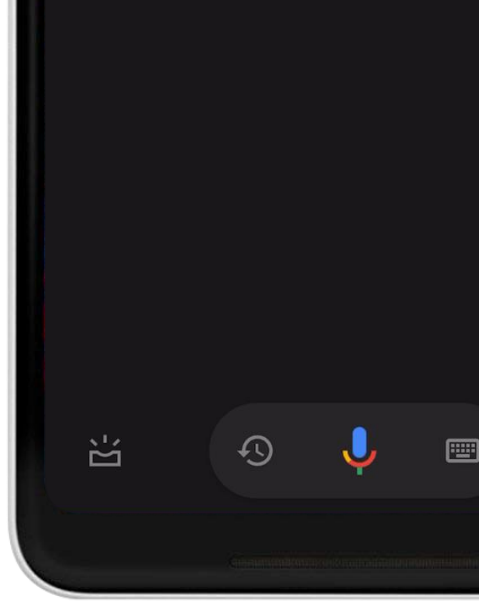
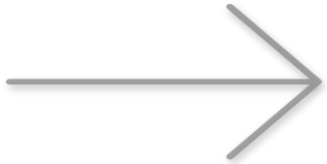
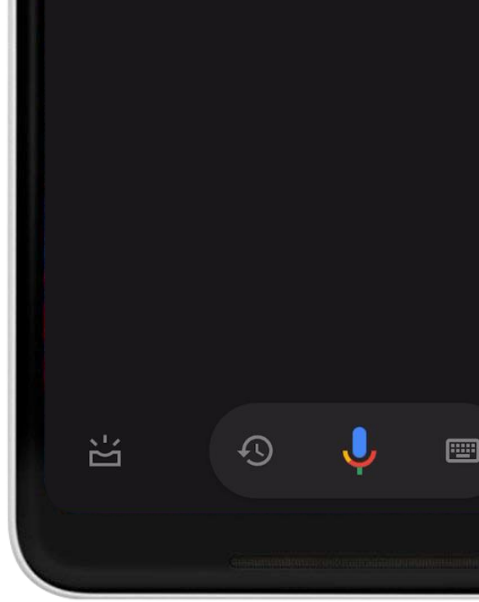
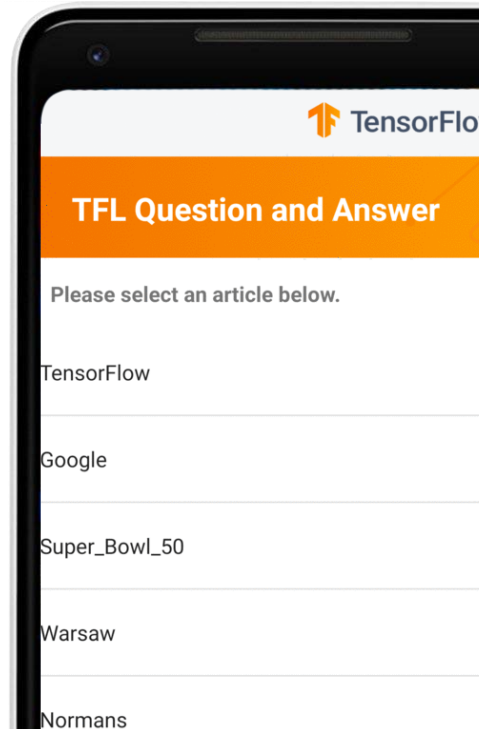



TensorFlowLite
TFL Question and Answer
Please select an article below.
TensorFlow
Google
Super_Bowl_50
Warsaw
Normans
Nikola_Tesla
Computational_complexity_theory
Teacher
Martin_Luther

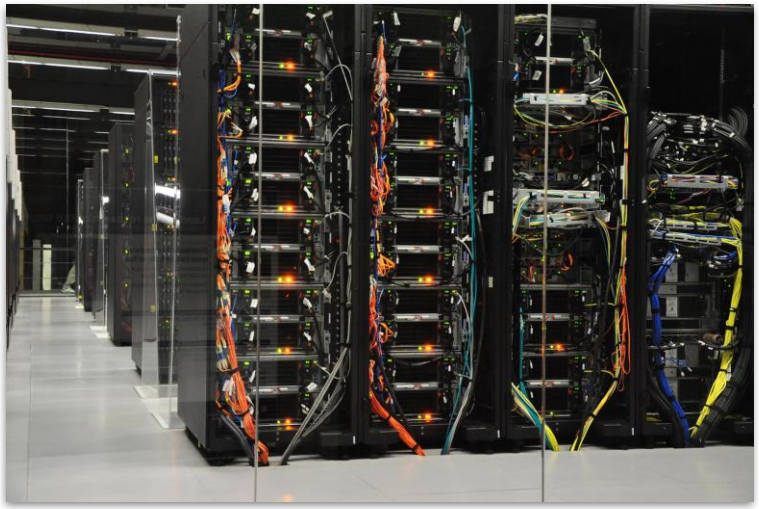







TensorFlo
TFL Question and Answer
Please select an article below.
TensorFlow
Google
Super_Bowl_50
Warsaw
Normans

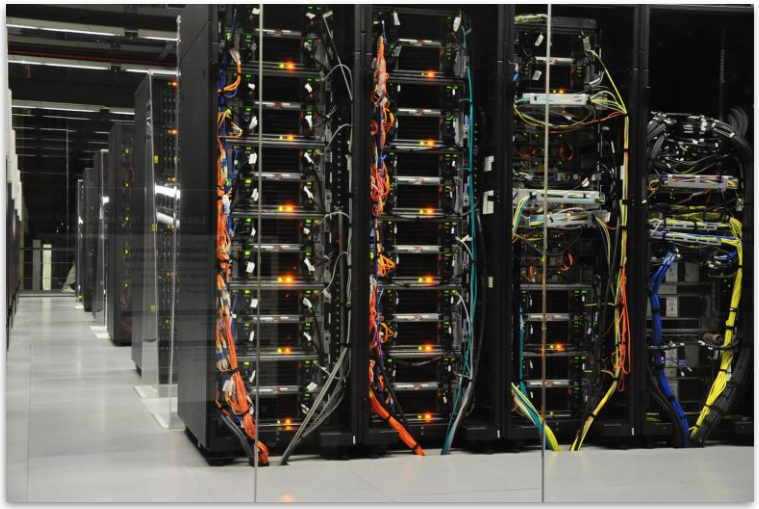
Why?



High power

Low power

Why?



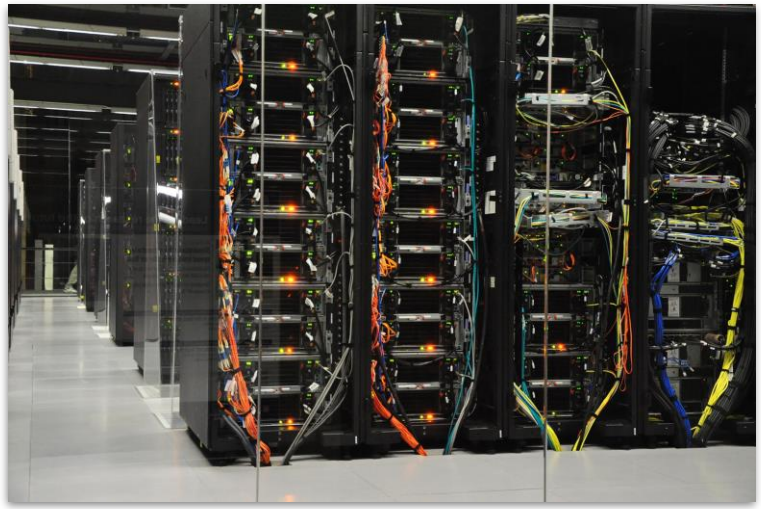
High power

High bandwidth

Low power

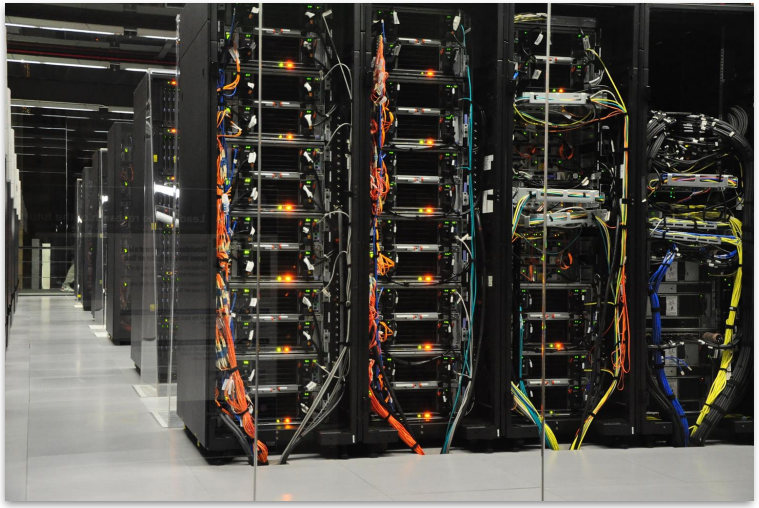
Low bandwidth

Why?



High power
High bandwidth
High latency

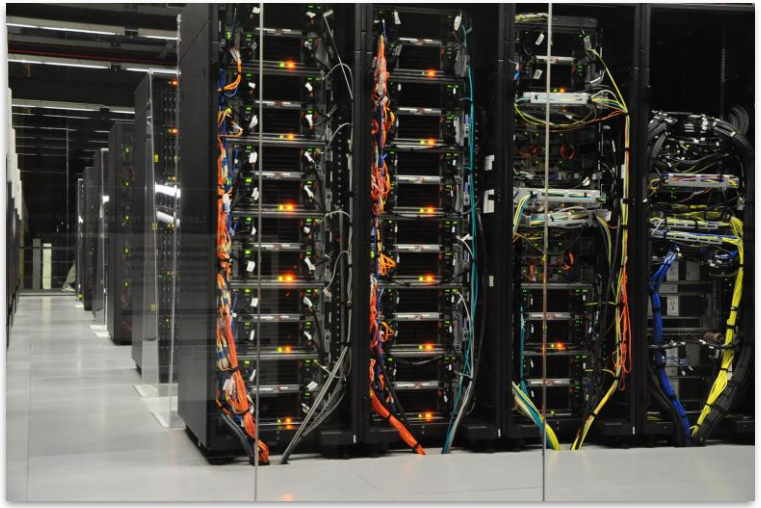
Low power
Low bandwidth
Low latency

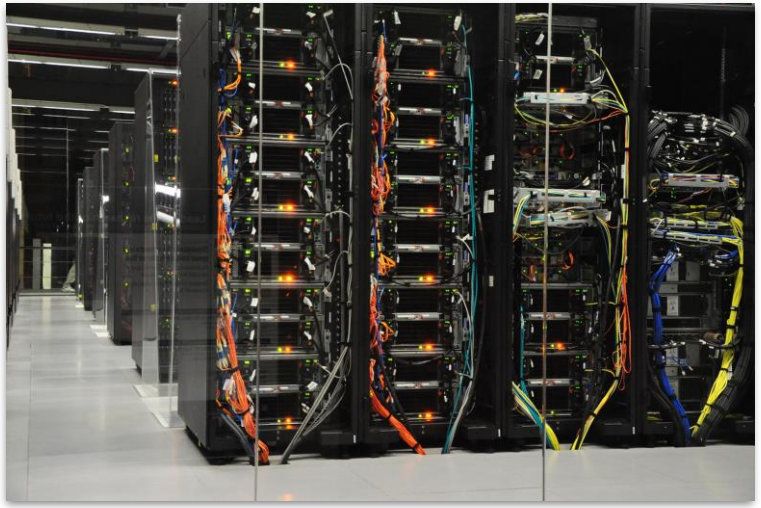


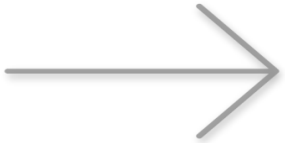
High power
High bandwidth
High latency

Low power
Low bandwidth
Low latency

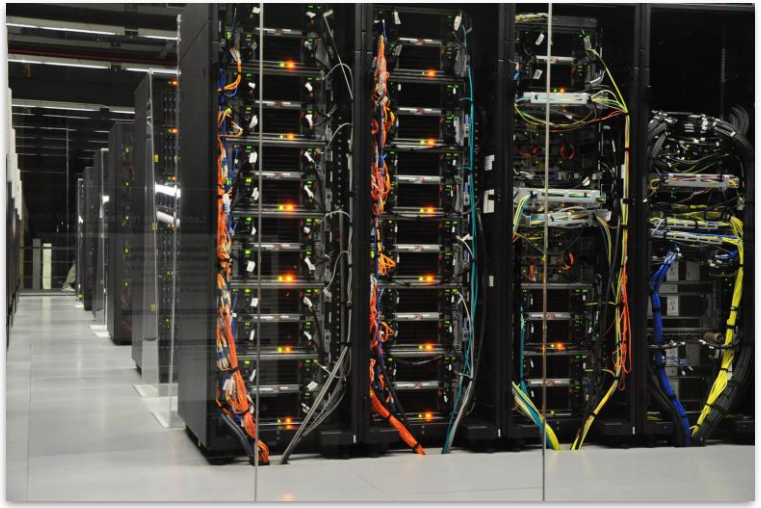

8:00
Dinner with Layla in 30 min
8:30 - 10:00 pm | 50°F
ALWAYS
ON?

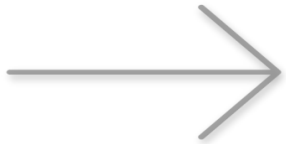







Dinner with Layla in 30 min





Google Assistant

Endpoint Devices

Google Assistant

Endpoint Devices

Google Assistant

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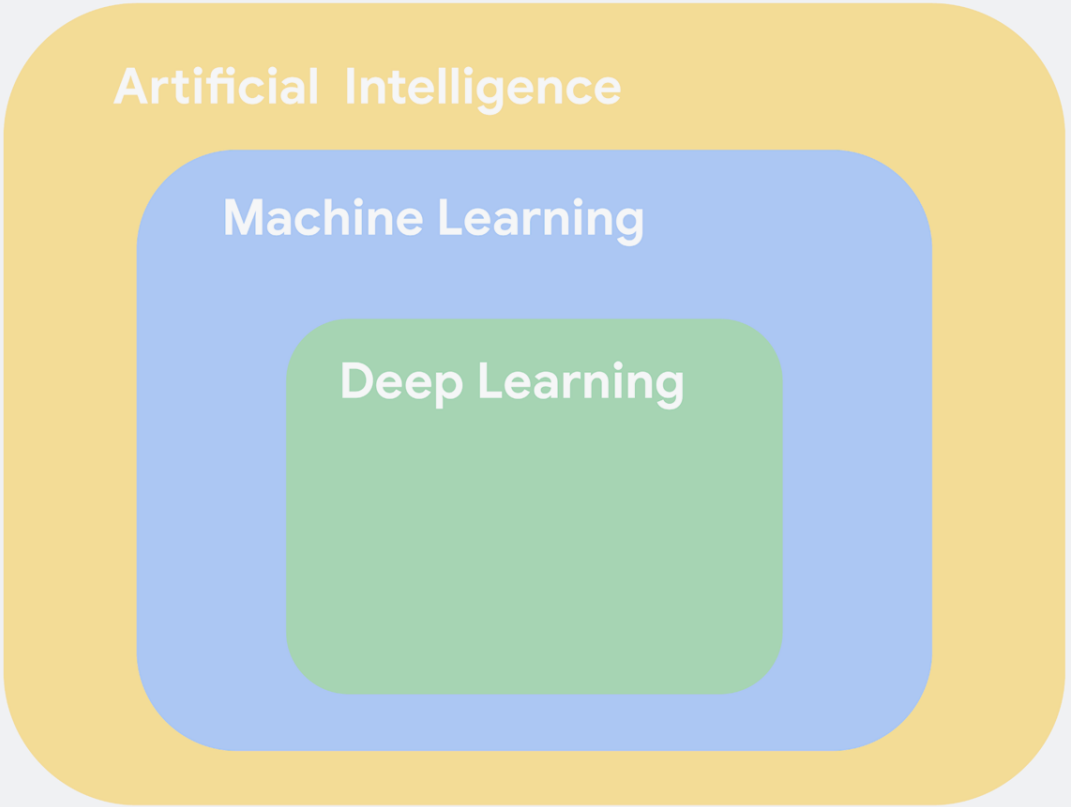

No Good Data Left Behind

5 Quintillion

bytes of data produced every day by IoT

<1%

of unstructured data is analyzed or used at all

Source: Harvard Business Review, What's Your Data Strategy?, April 18, 2017
Cisco, Internet of Things (IoT) Data Continues to Explode Exponentially. Who Is Using That Data and How?, Feb 5, 2018

Summary

- ML has several diverse applications in the real-world
- ML is increasingly moving from the cloud to endpoint devices
- Endpoint devices are everywhere around us