Track 7

Inteligencia Artificial Aplicada

# 9. Deep Learning (DL) Wrap-Up

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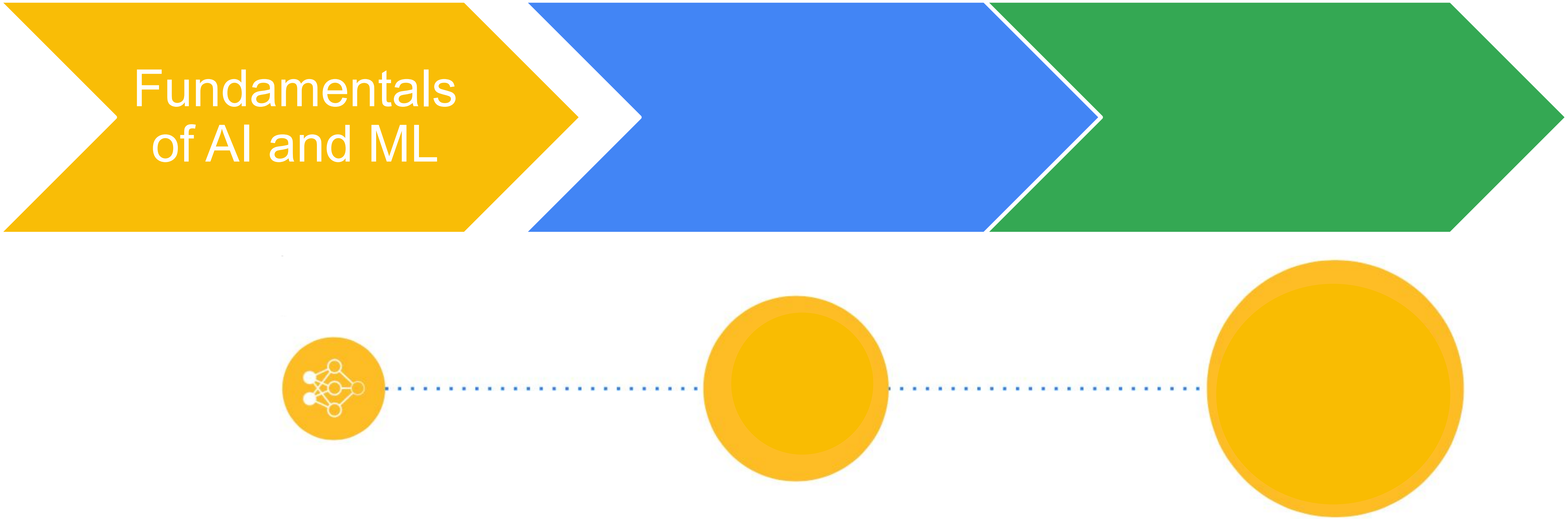
# Deep Learning Wrap-Up

# What have we learned so far?

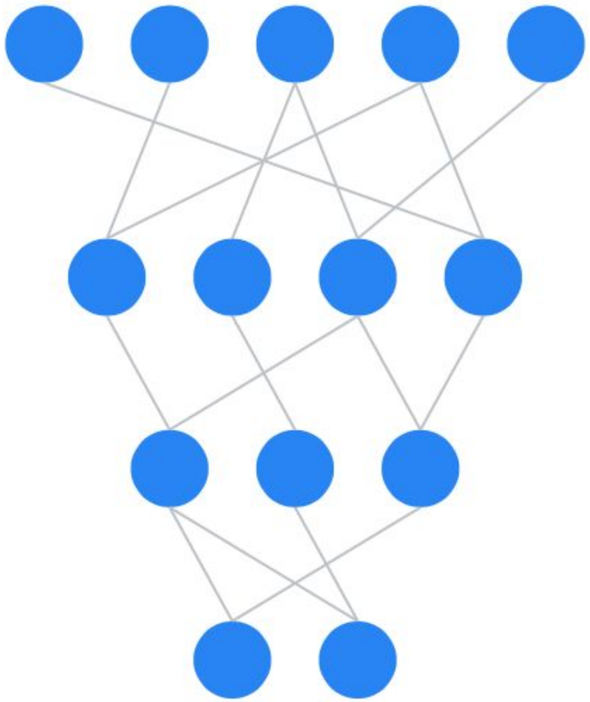
Part 1



Fundamentals of AI and ML

In Part 1, while discussing what is the language of machine learning, we introduced ML with TensorFlow.

# Total Recall from **Part 1**



# “Language” for **Part 1**

Training Data

**Neural Network**

Training

Validation Data

Inference

**Gradient Descent**

Test Data

Features

Classification

**Loss Function**

Filters

Overfitting

Kernels

Regression

Data augmentation

CNNs

Responsible AI

DNNs

Preprocessing

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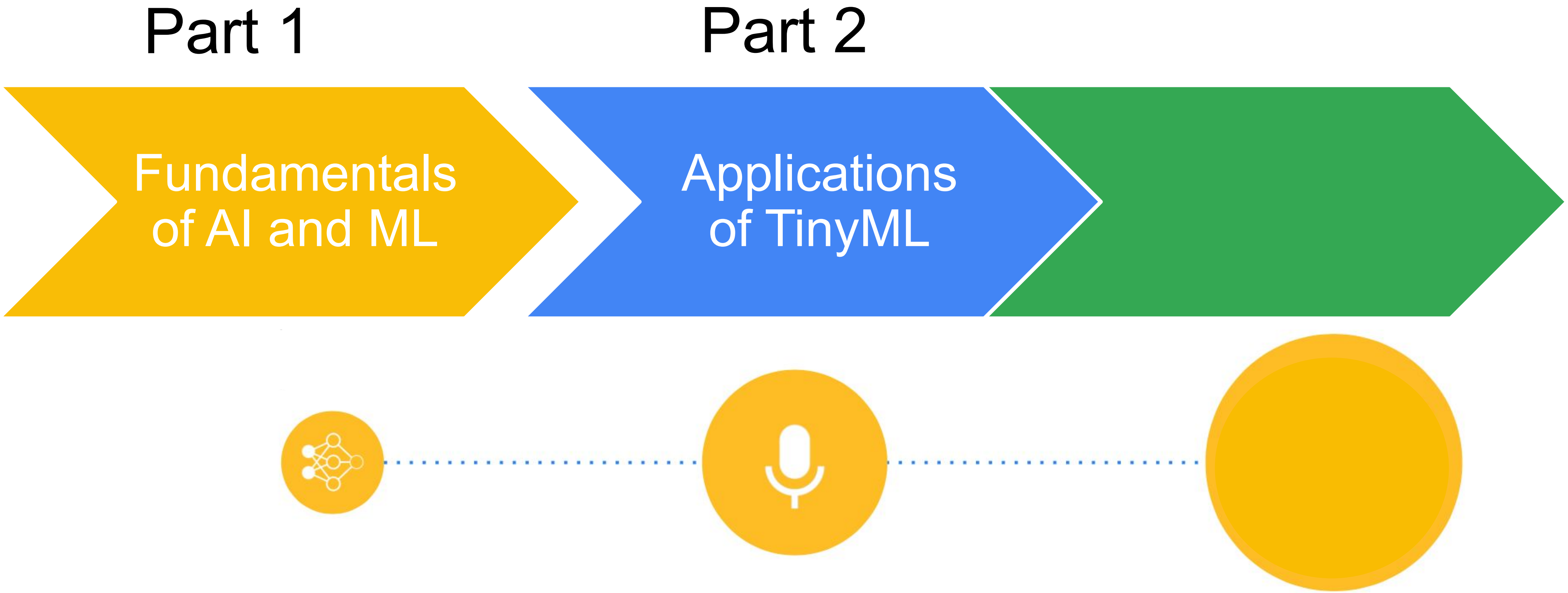
# What will we learn?



Part 1

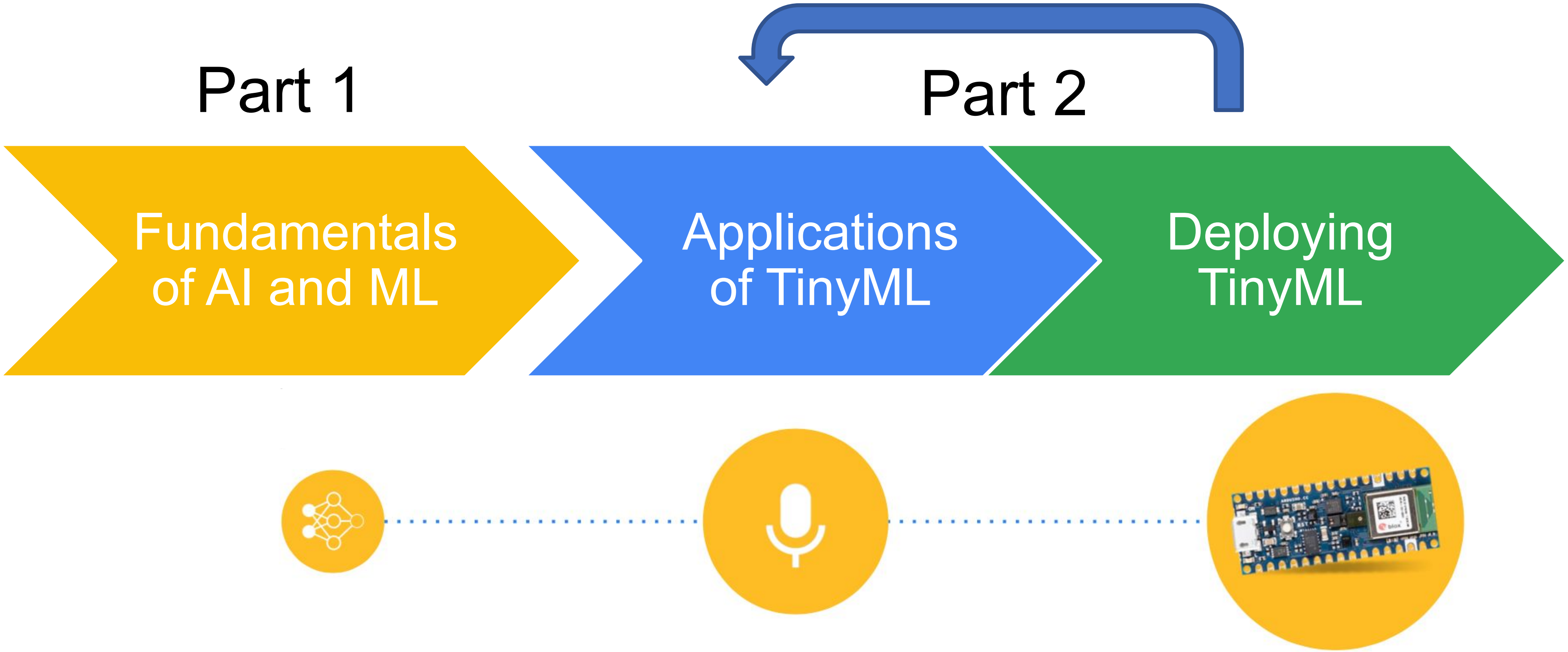
Part 2

Fundamentals of AI and ML

Applications of TinyML

In Part 2, we will get a sneak peek into the variety of different TinyML applications, as keyword spotting (“Alexa”), gesture recognition, understand how to leverage the sensors, and so forth.

# What will we learn?



Part 1

Part 2

Fundamentals of AI and ML

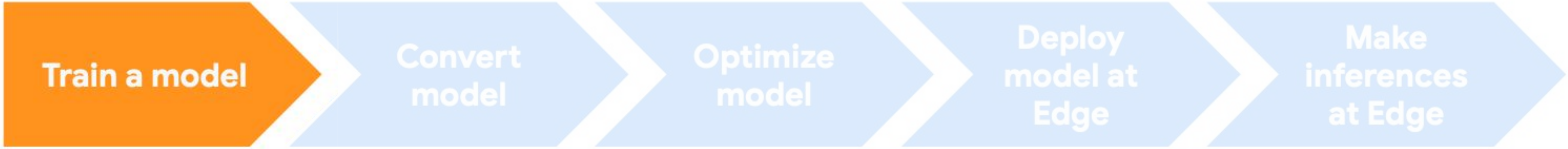
Applications of TinyML

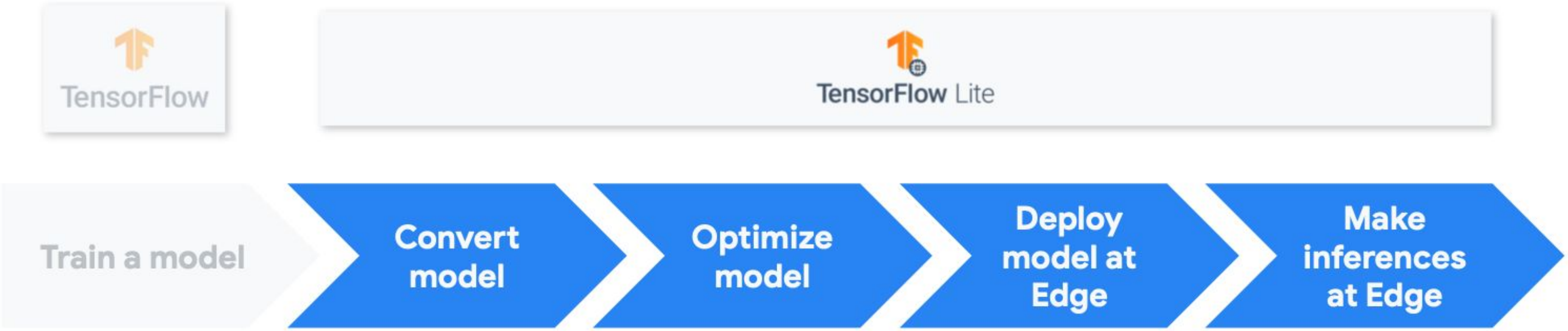
Deploying TinyML

In Part 2, we will **also** learn how to deploy models on a real microcontroller. Along the way we will explore the challenges unique to and amplified by TinyML (e.g., preprocessing, post-processing, dealing with resource constraints).

TensorFlow

TensorFlow Lite





TensorFlow

TensorFlow Lite

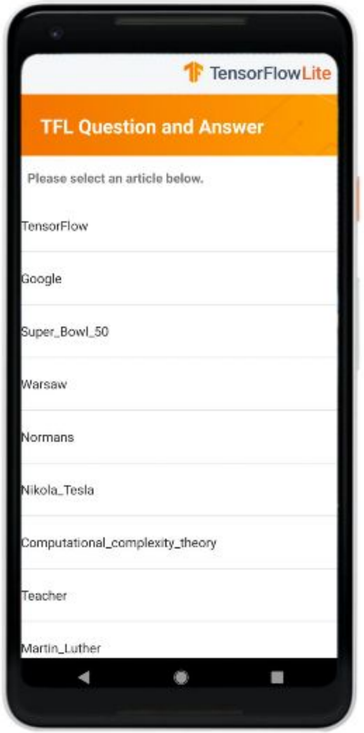
Train a model

Convert model

Optimize model

Deploy model at Edge

Make inferences at Edge



TFL Question and Answer

Please select an article below.

TensorFlow

Google

Super_Bowl_50

Warsaw

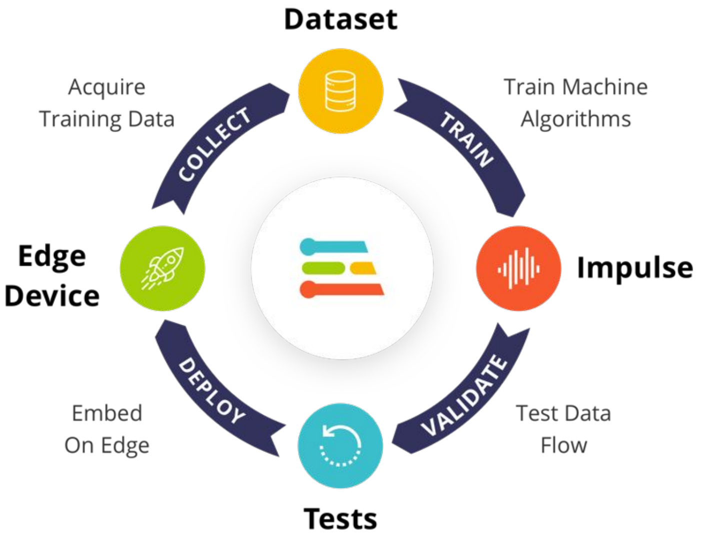
Normans

Nikola_Tesla

Computational_complexity_theory

Teacher

Martin_Luther



Dataset

Acquire Training Data

COLLECT

Train Machine Algorithms

TRAIN

Edge Device

Impulse

Embed On Edge

DEPLOY

Test Data Flow

VALIDATE

Tests

# Thanks

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