INTRODUCTION TO MACHINE LEARNING

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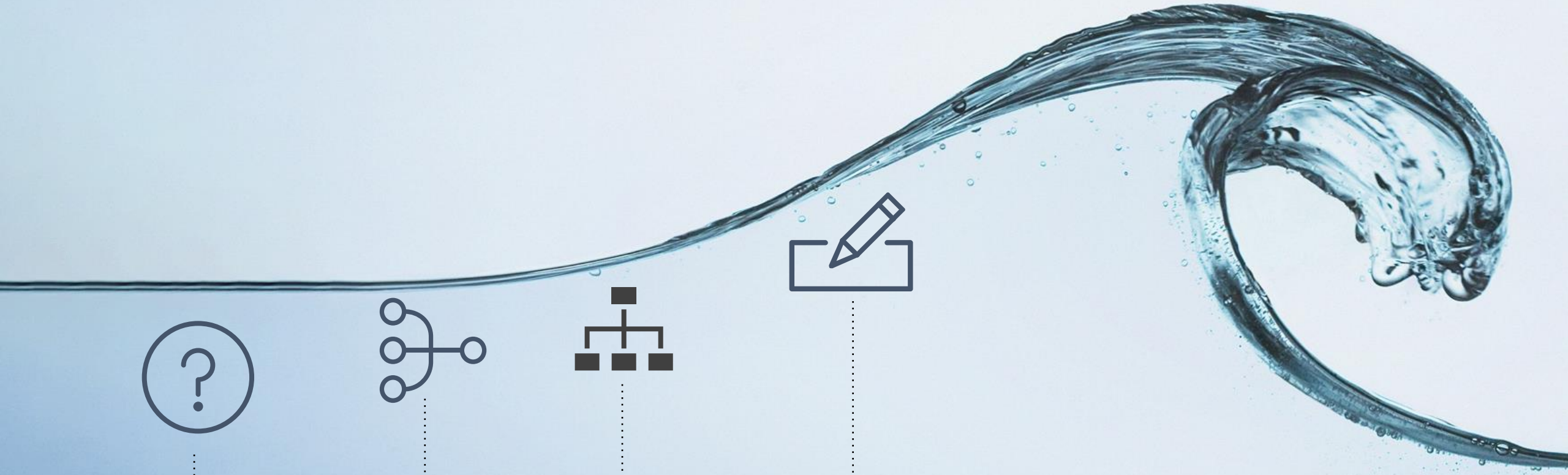
AGENDA



WHAT IS MACHINE LEARNING

TYPES OF MACHINE LEARNING

OVERVIEW OF TECHNIQUES

DIFFERENCE BETWEEN DL & ML

WHAT IS MACHINE LEARNING?

MACHINE LEARNING

As quoted by Machine Learning Expert Tom Mitchell:

"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 "

MACHINE LEARNING : EXAMPLE

PREDICTING WEIGHTS BASED ON HEIGHTS:

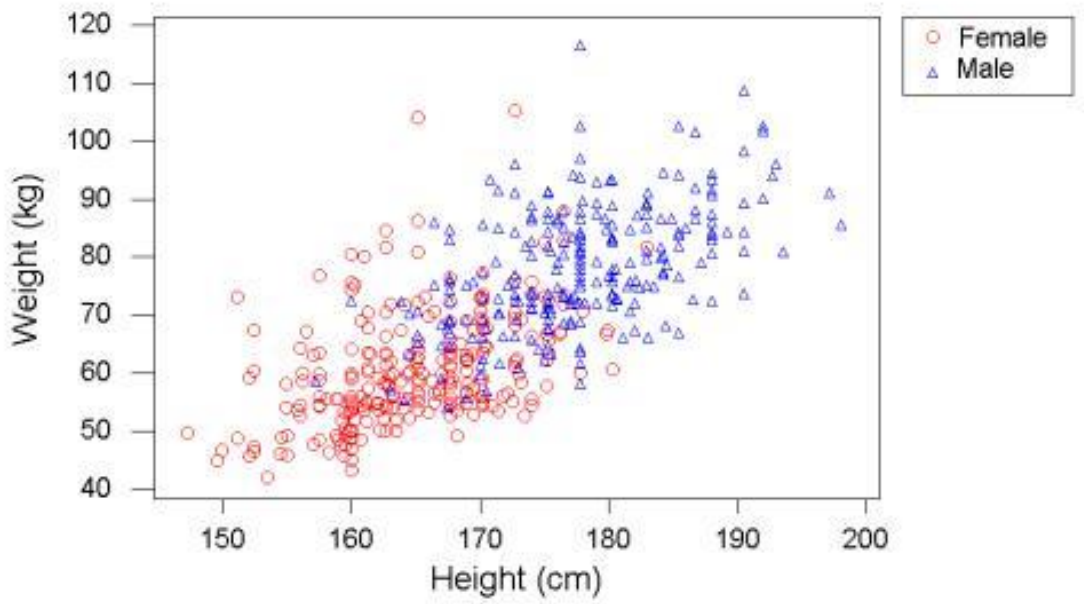
"We want to create a system which tells expected weight based on height of a person "

Here,

Data Points & features Collected – Experience (E)

Predicting Weight based on Height -- Task (T)

Correct predictions of Weight – Performance Measure (P)



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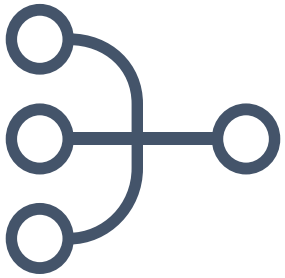
TYPES OF MACHINE LEARNING



TYPES OF MACHINE LEARNING

Broadly, there are 3 types of Machine Learning:

Supervised Learning

Un-Supervised Learning

Semi Supervised Learning

TYPES OF MACHINE LEARNING

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SUPERVISED LEARNING

Supervised Learning | algorithm takes a known set of input data and known responses to the data (output) and trains a model to generate reasonable predictions for the response to new data. We use supervised learning if you have known data for the output you are trying to predict.

Supervised learning **uses classification and regression techniques to develop predictive models.**

TYPES OF MACHINE LEARNING

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UNSUPERVISED LEARNING

Unsupervised Learning | finds hidden patterns or intrinsic structures in data. It is used to draw inferences from datasets consisting of input data without labeled responses.

Clustering is the most common unsupervised learning technique. It is used for exploratory data analysis to find hidden patterns or groupings in data.

TYPES OF MACHINE LEARNING

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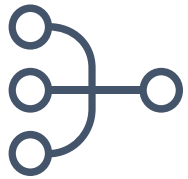
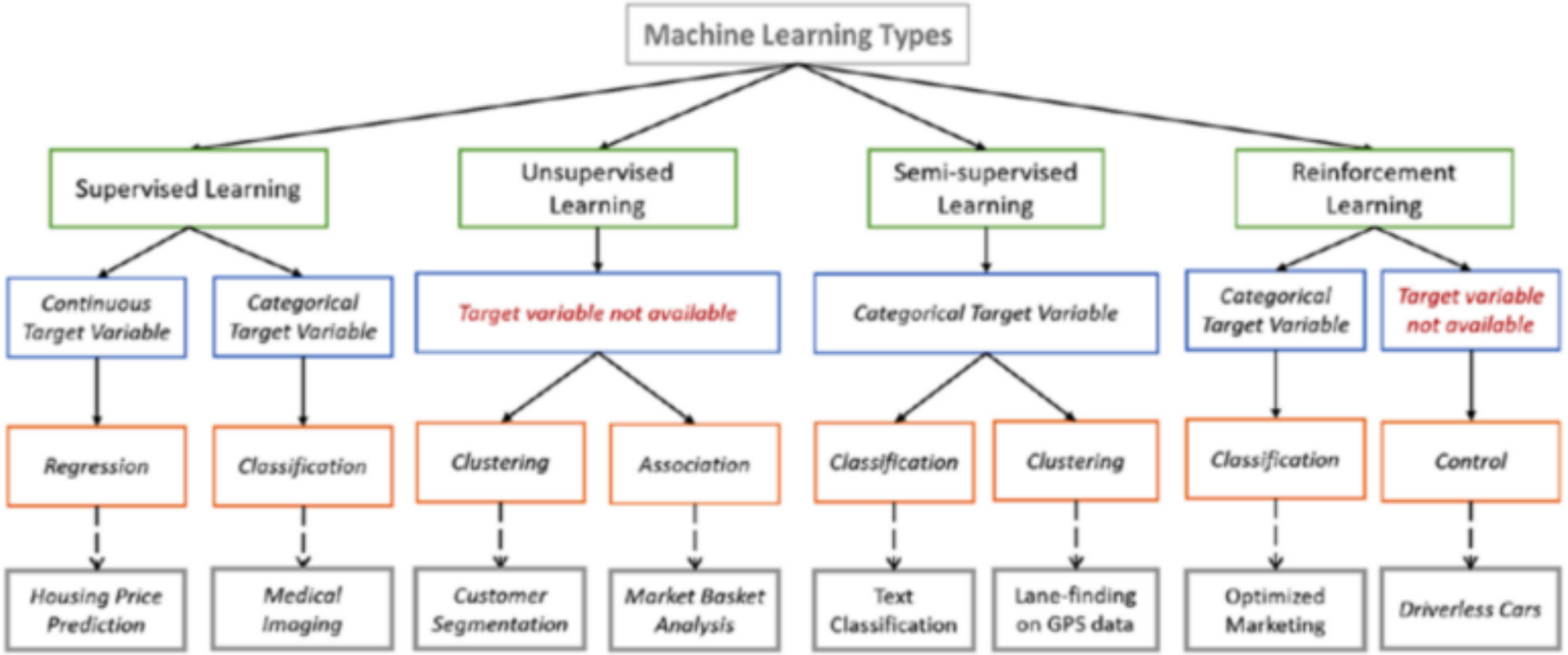
SEMI SUPERVISED LEARNING

Semi supervised Learning | is a combination of Supervised and Unsupervised Learning. It is trained on a combination of data with labels and data without labels. The goal of a semi-supervised model is to classify some of the unlabeled data using the labeled information set.

OVERVIEW OF TECHNIQUES



A GLIMPSE OF VARIOUS TECHNIQUES



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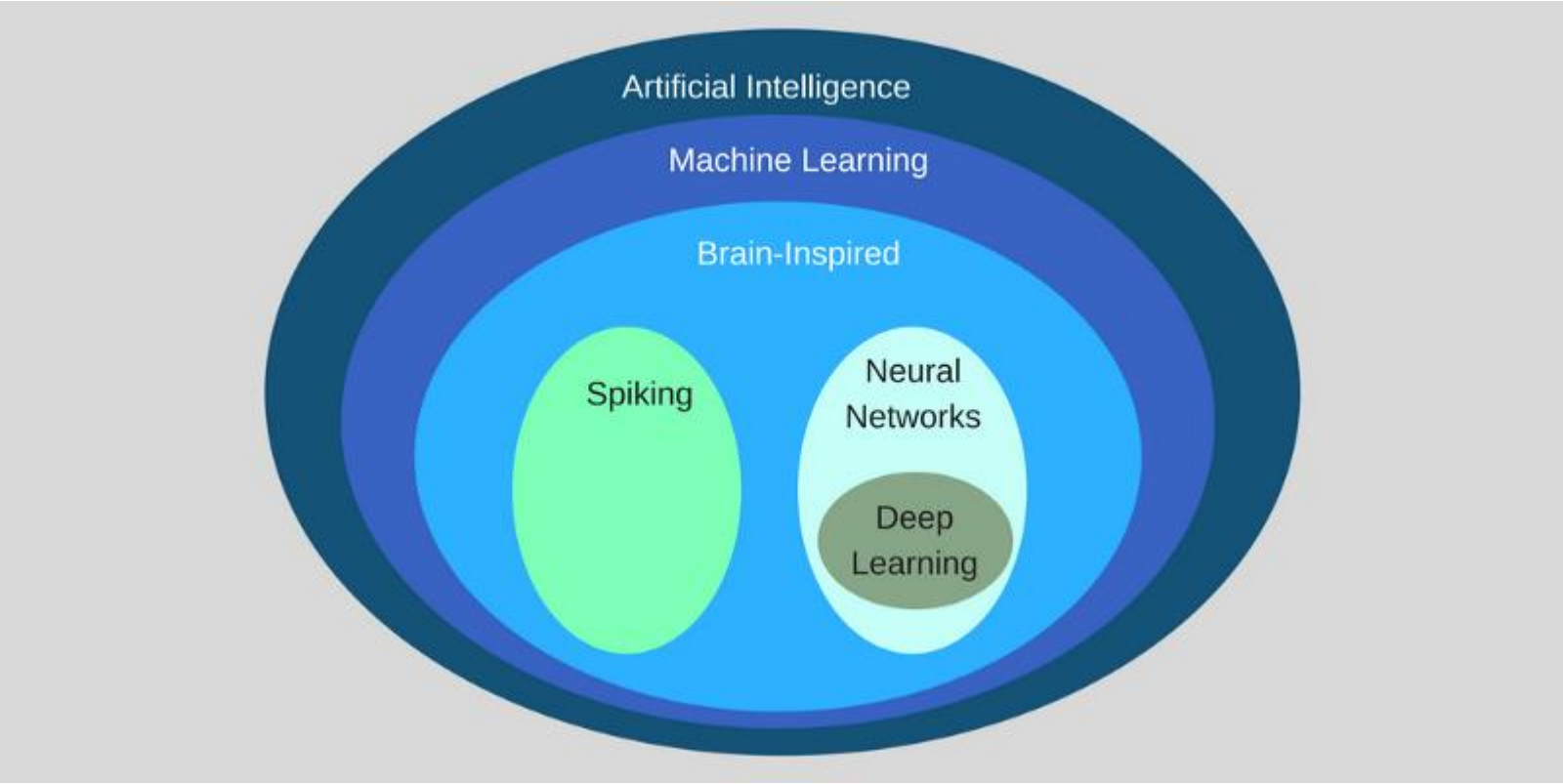
DIFFERENCE BETWEEN MACHINE LEARNING & DEEP LEARNING

ASSOCIATIONS

RELATIONSHIP BETWEEN ARTIFICAL INTELLEGIENCE, MACHINE LEARNING AND DEEP LEARNING



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SUMMARY

- *Artificial Intelligence* is **human intelligence** exhibited **by machines**
- *Machine Learning* is **an approach** to achieve Artificial Intelligence
- *Deep Learning* is a **technique** for implementing Machine Learning

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THANK YOU