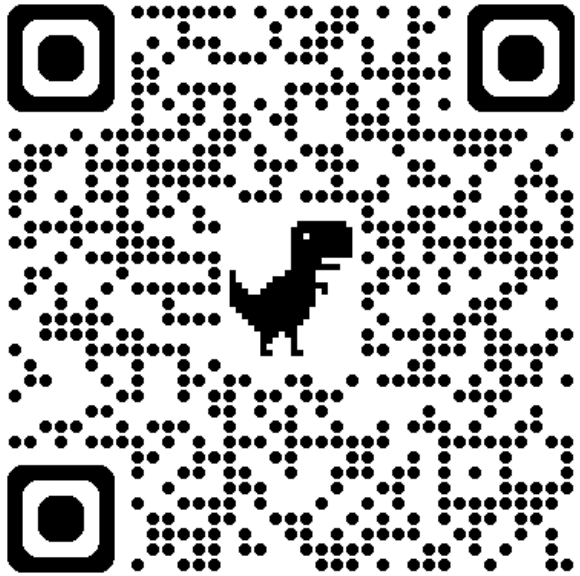
Foundations and Frontiers:
Introduction to Machine Learning (ML) for Interdisciplinary Research

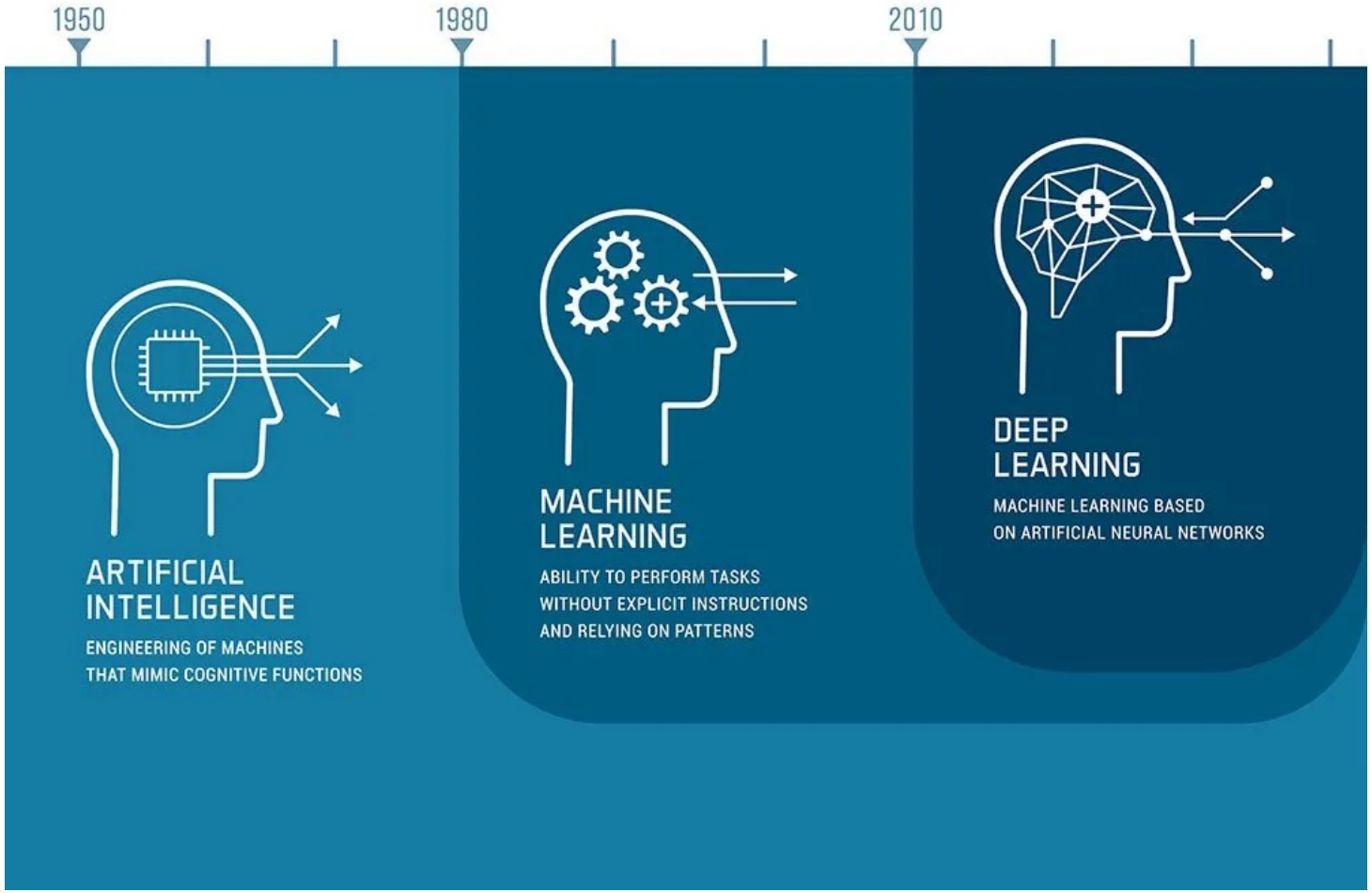
Presenter:

Thanh Tran, PhD candidate in Machine Learning, EAIT

- **Experienced in machine learning engineering, data science, and research**
- **Specialize in advanced neural networks for traffic management**
- **Enjoy learning about AI, data science**

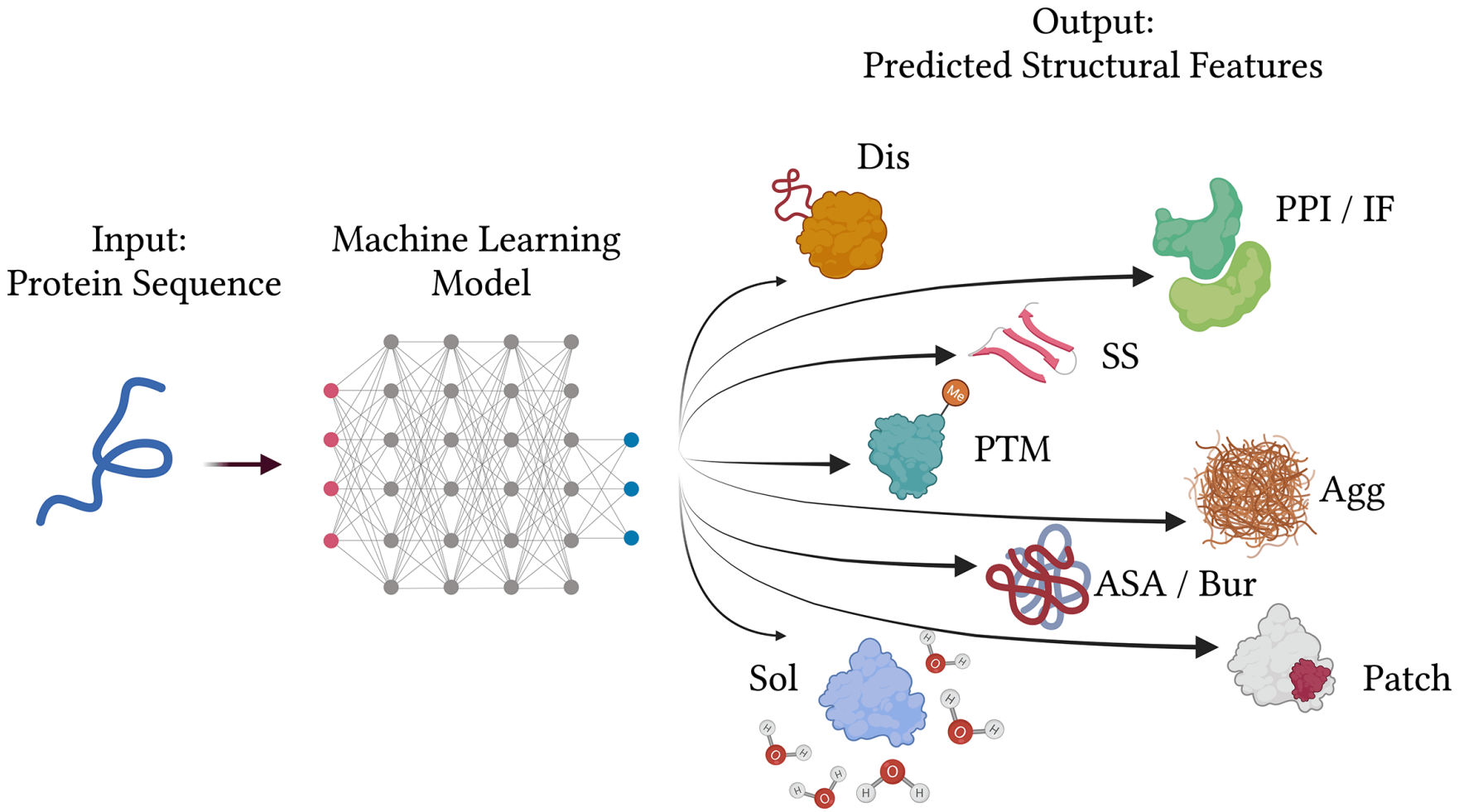


Understanding the Impact of Machine Learning



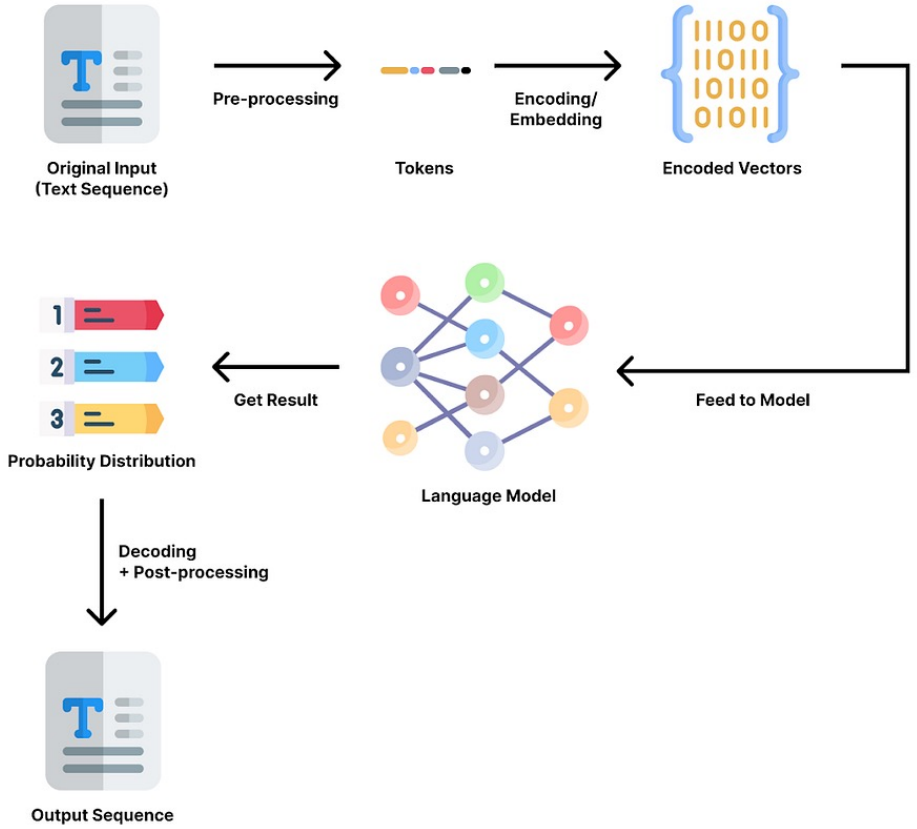
Infographic explaining artificial intelligence, machine learning and deep learning. Credit: elenabs/iStock.com

Some Applications of Machine Learning



https://cbirt.net/ten-hacks-for-predicting-protein-properties-from-sequences-using-machine-learning/

Some Applications of Machine Learning



https://bootcamp.uxdesign.cc/how-chatgpt-really-works-explained-for-non-technical-people-71efb078a5c9

Machine Learning Tools

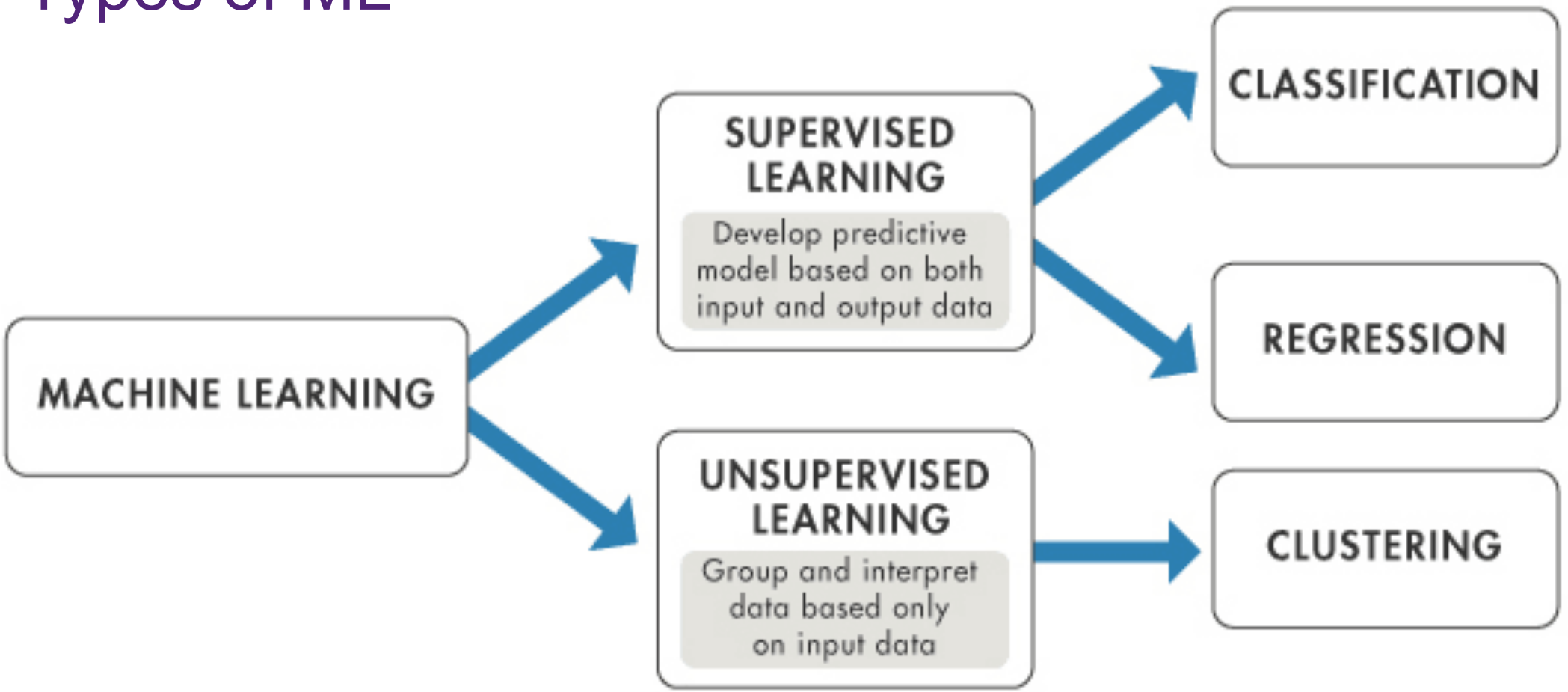
TensorFlow – a popular tool that offers easy model development using high-level APIs, support for parallel neural network training, and extensive community support

PyTorch – a tool used in the development of machine learning applications for creating deep models, productizing them, and training them

Scikit-Learn – an open-source Python library that offers a variety of machine learning algorithms, pre-processing techniques, cross-validation, and visualization methods

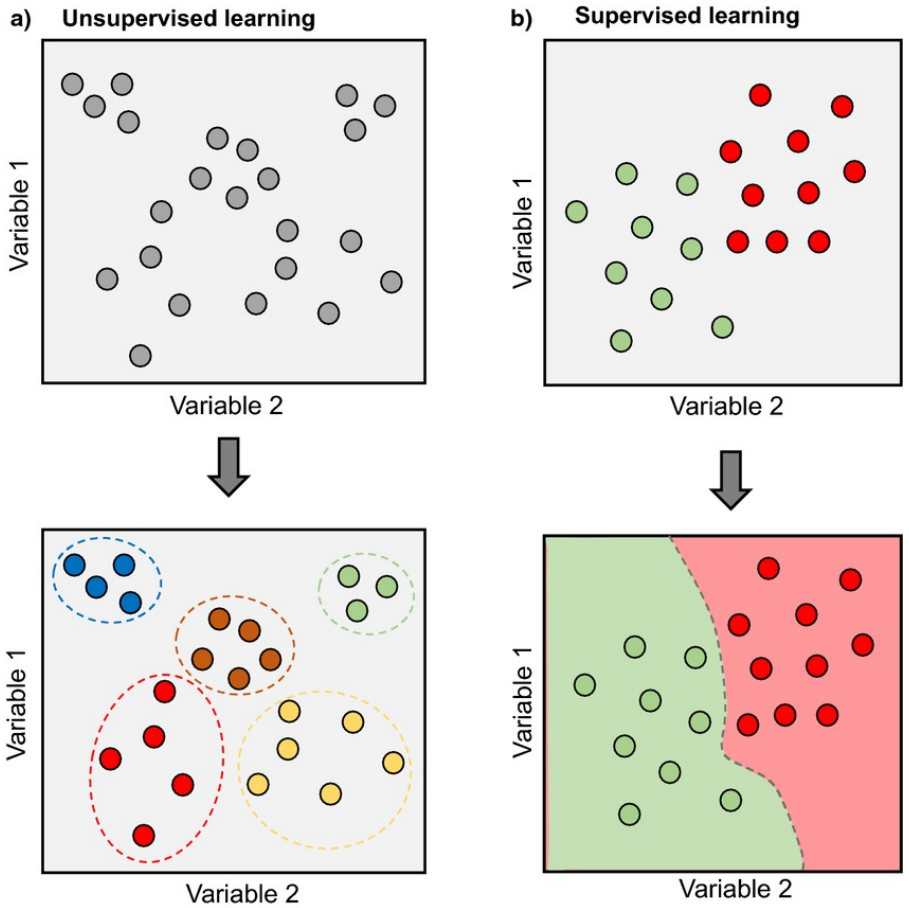
Google TensorFlow – a popular open-source machine learning framework developed by Google

Types of ML

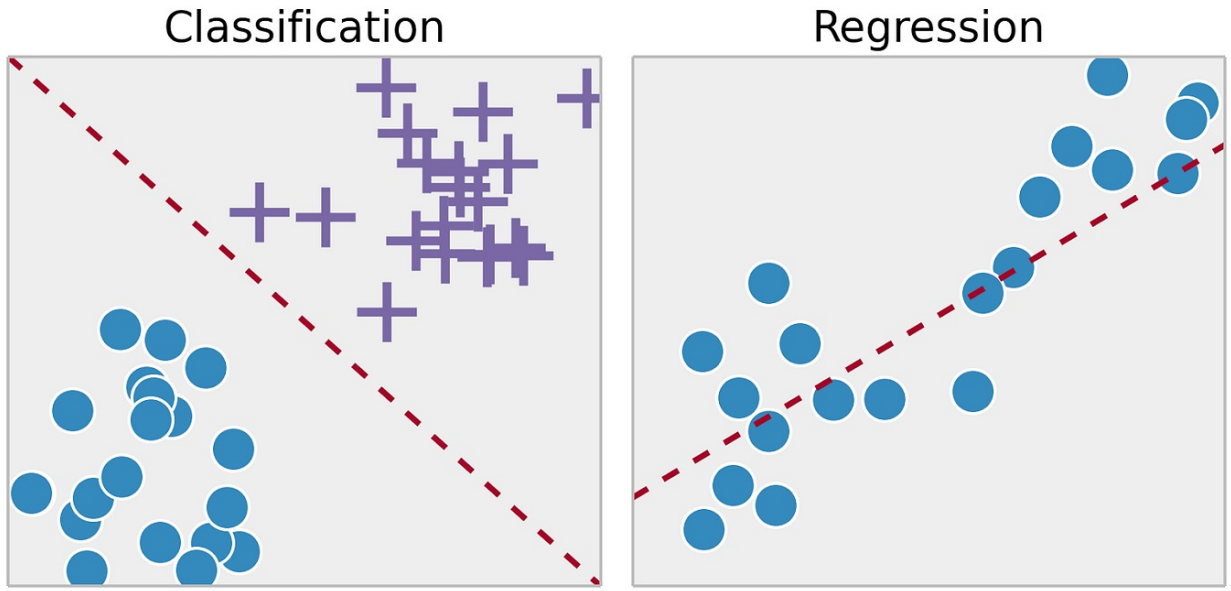


https://www.datacamp.com/blog/what-is-machine-learning

Common types of ML

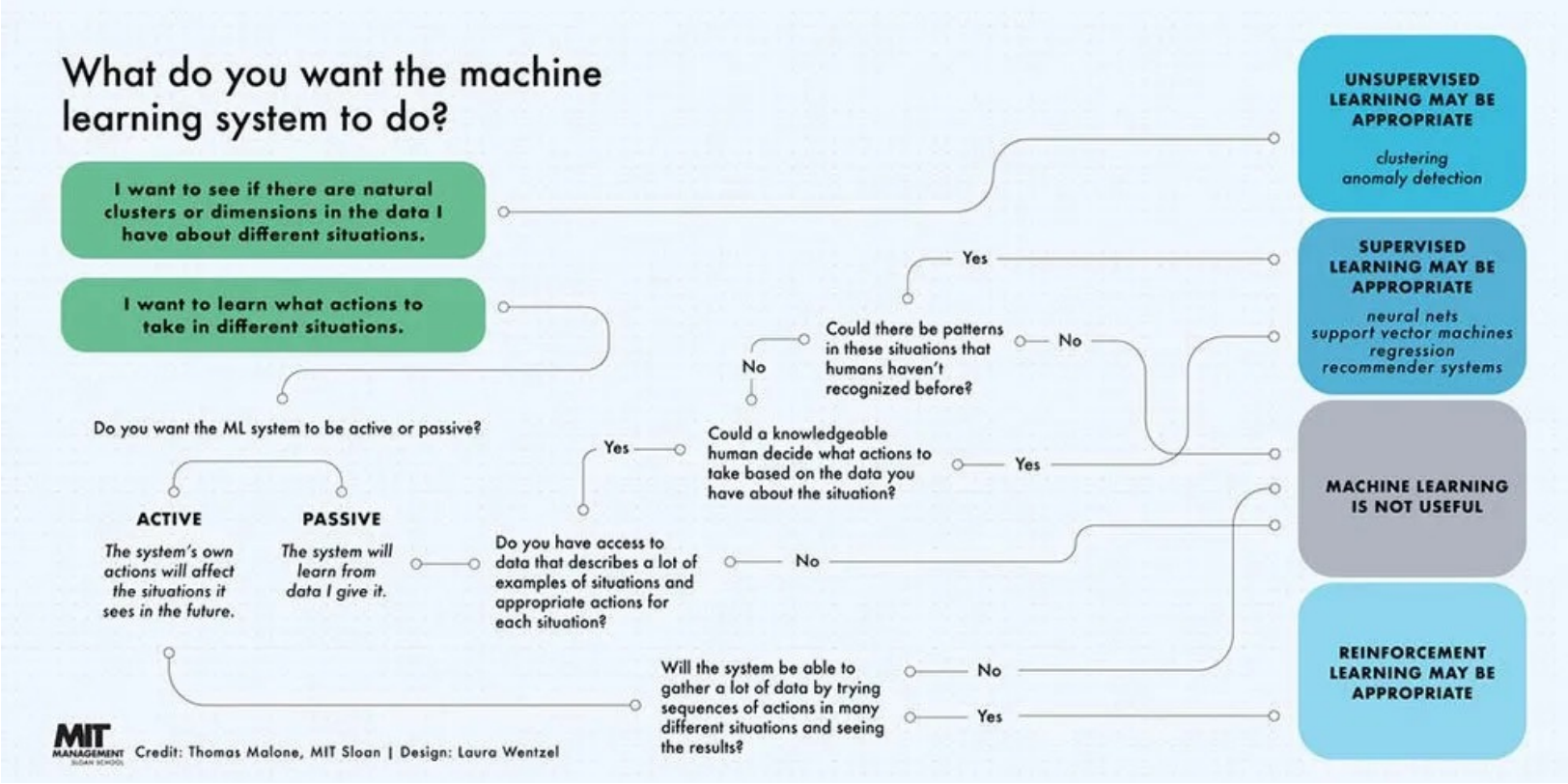


https://www.researchgate.net/figure/Supervised-and-unsupervised-machine-learning-a-Schematic-representation-of-an_fig3_351953193



https://towardsdatascience.com/supervised-vs-unsupervised-learning-14f68e32ea8d

Machine Learning Models in Action



https://forms.office.com/r/TaBFqQMuEi

Image Source: https://mitsloan.mit.edu/ideas-made-to-matter/machine-learning-explained

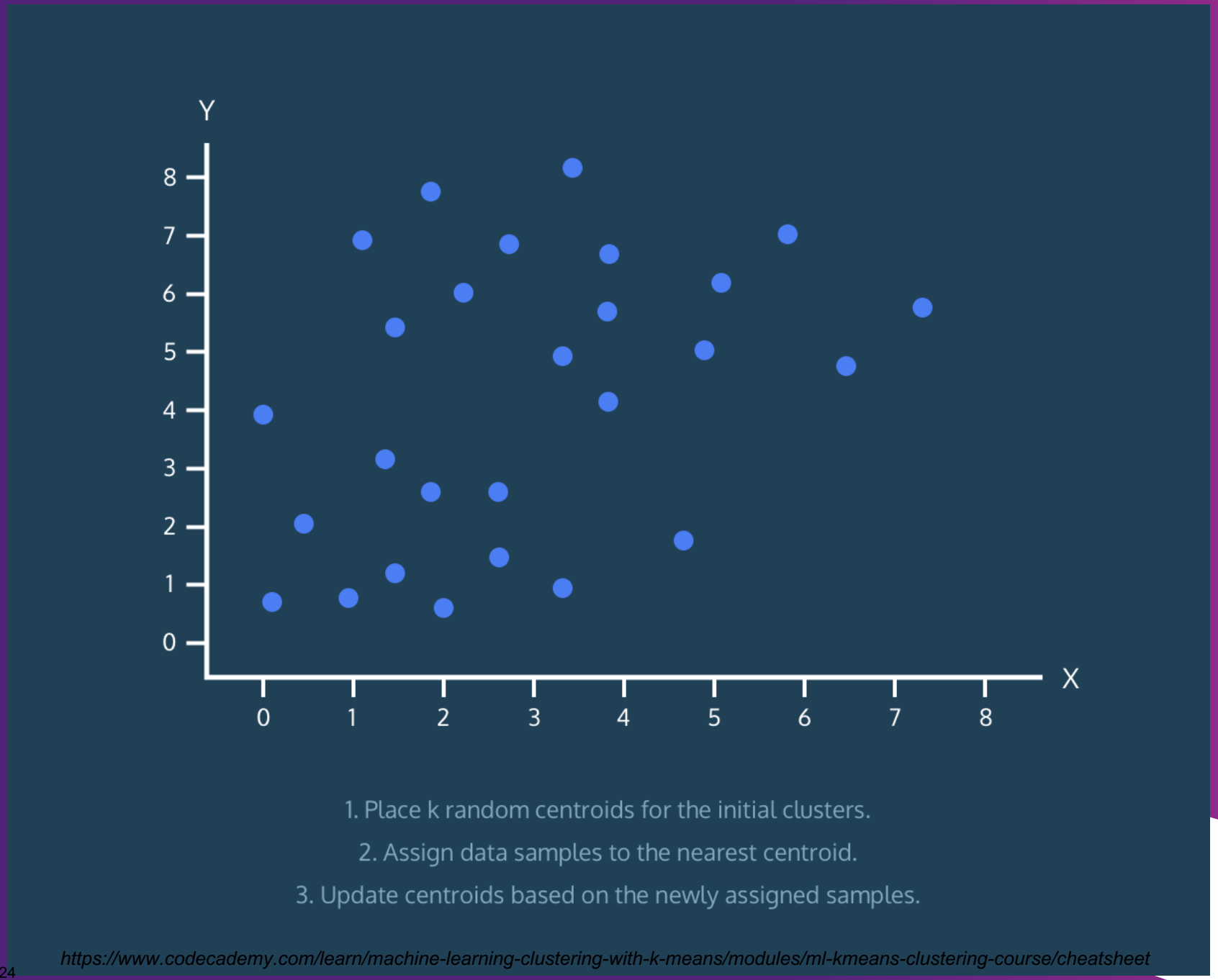
Context:
You are conducting research in a variety of fields and want to determine if machine learning (ML) techniques are applicable to your work. Based on the decision flowchart provided by MIT Sloan, answer the following questions by choosing the most appropriate machine learning approach or determining if machine learning is not useful.

Team based activity

Answer; https://shorturl.at/nULxq

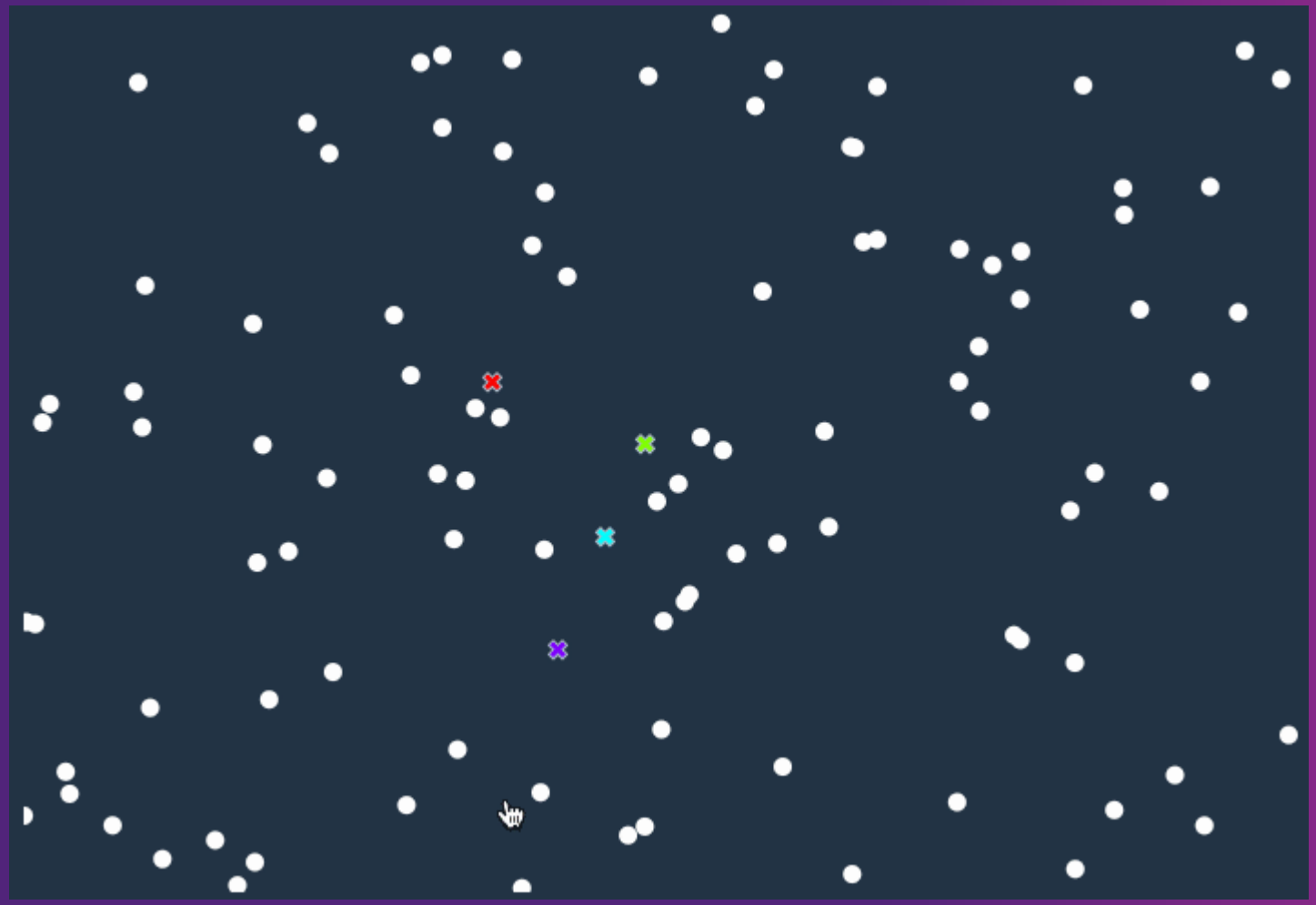
https://forms.office.com/r/TaBFqQMuEi

Machine Learning, **Unsupervised** Learning Algorithm, Clustering with **Kmean**



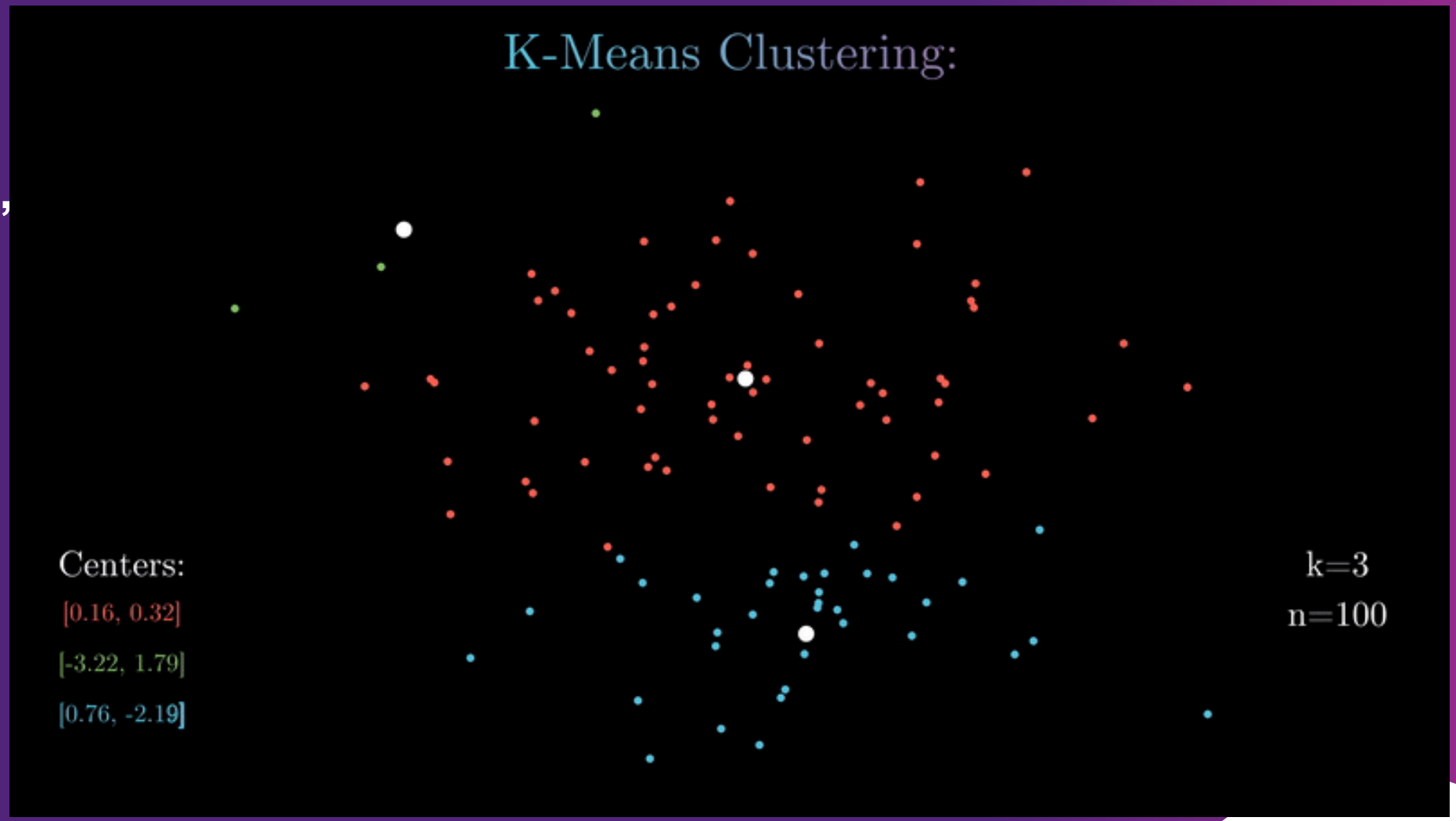
https://www.codecademy.com/learn/machine-learning-clustering-with-k-means/modules/ml-kmeans-clustering-course/cheatsheet

Machine Learning, Unsupervised Learning Algorithm, Clustering with Kmean



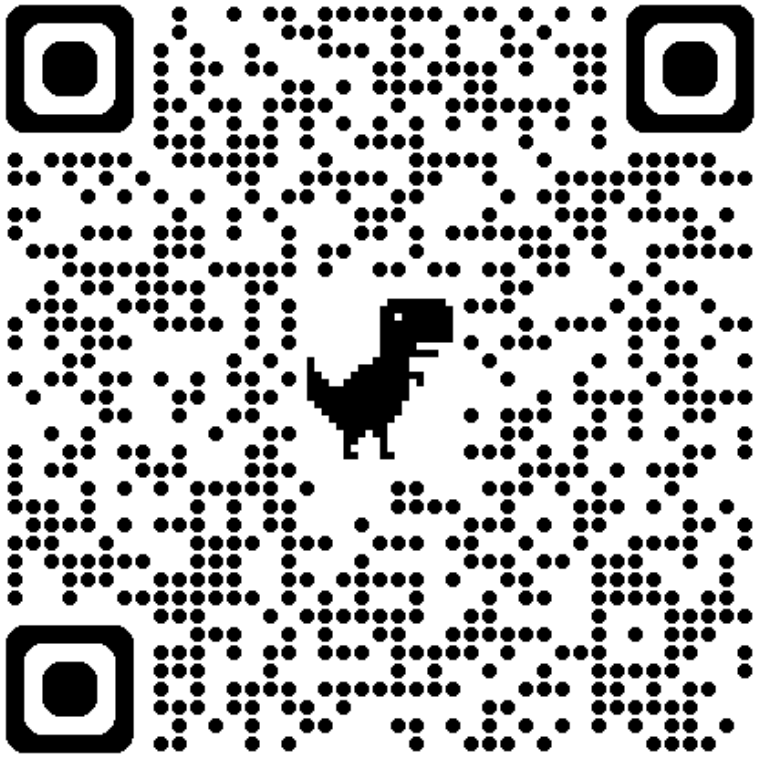
https://www.datacamp.com/tutorial/cluster-analysis-in-tableau

Machine Learning, Unsupervised Learning Algorithm, Clustering with Kmean



https://www.linkedin.com/pulse/k-means-clustering-use-cases-kartik-lokare-1f

Exercise with different datasets



https://shorturl.at/tVPsI

Upcoming Events and Notifications

- Student Staff Partnership
- Statistics with Python Seminar
- Statistics Network
- Online resources
- Library training

SSP Seminar Feedback