



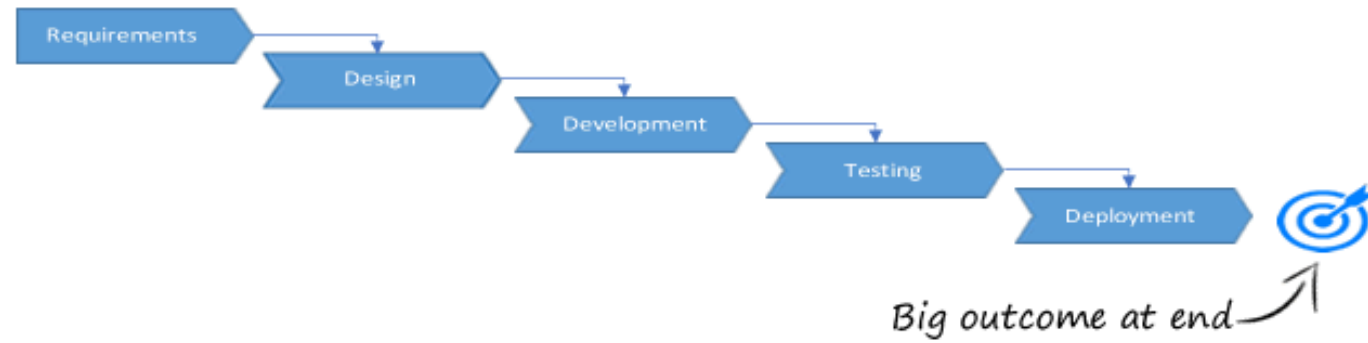
TRANSITIONING FROM SOFTWARE DEVELOPER TO MACHINE LEARNING DEVOPS ENGINEER

SCOTT FRAME

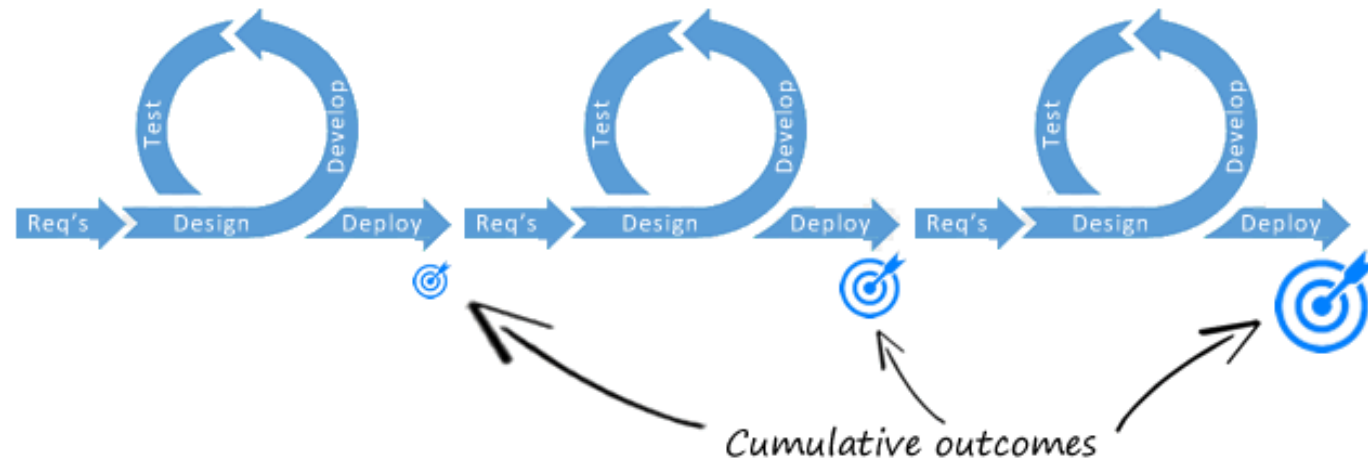
BACKGROUND

- BS in EE/CE
- Work for DoD as Electronics Engineer
- Develop Real Time Software
- MS in Computer Science
- Develop Web Apps / Web Services
- SW Eng >>> Tech Lead >>> Solution Architect
- Machine Learning Engineer / ML Ops

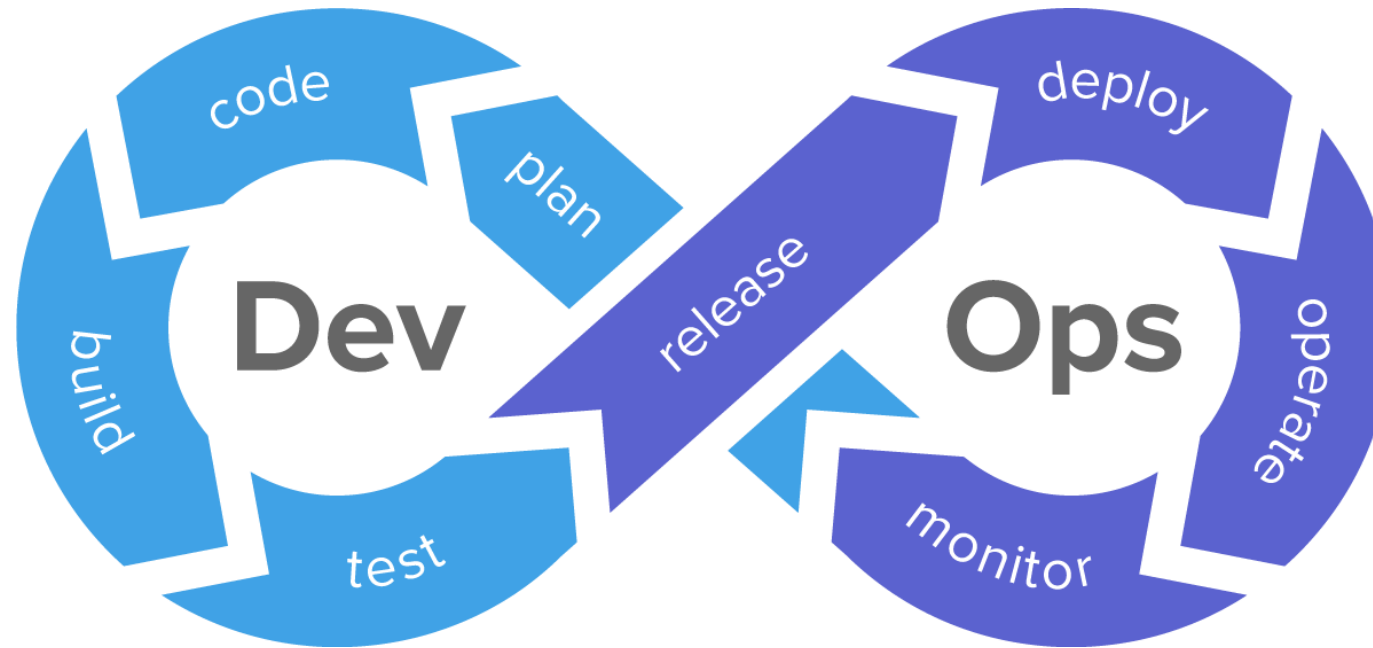
Waterfall



Agile



What is DevOps ?



CI/CD PIPELINE



Commit
change



Trigger build



Build



Notify of
build
outcome



Run tests



Notify of test
outcome



Deliver build
to staging



Deploy to
production



A dark blue background with white, stylized circuit lines and nodes. The lines are thin and angular, connecting small circles at various points, creating a network-like pattern. Some lines are vertical, while others are diagonal or horizontal, forming a complex web of connections.

Data Analytics – measurement of traditional indicators and analysis to describe historical trends

Data Science – the use of advanced tools to extract data, make predictions, and discover trends

Machine Learning – the use of large data sets and extensive computing power to automate analytical model building with advanced algorithms



Developing a Machine Learning Model

Data Exploration

Data Wrangling

Feature Selection

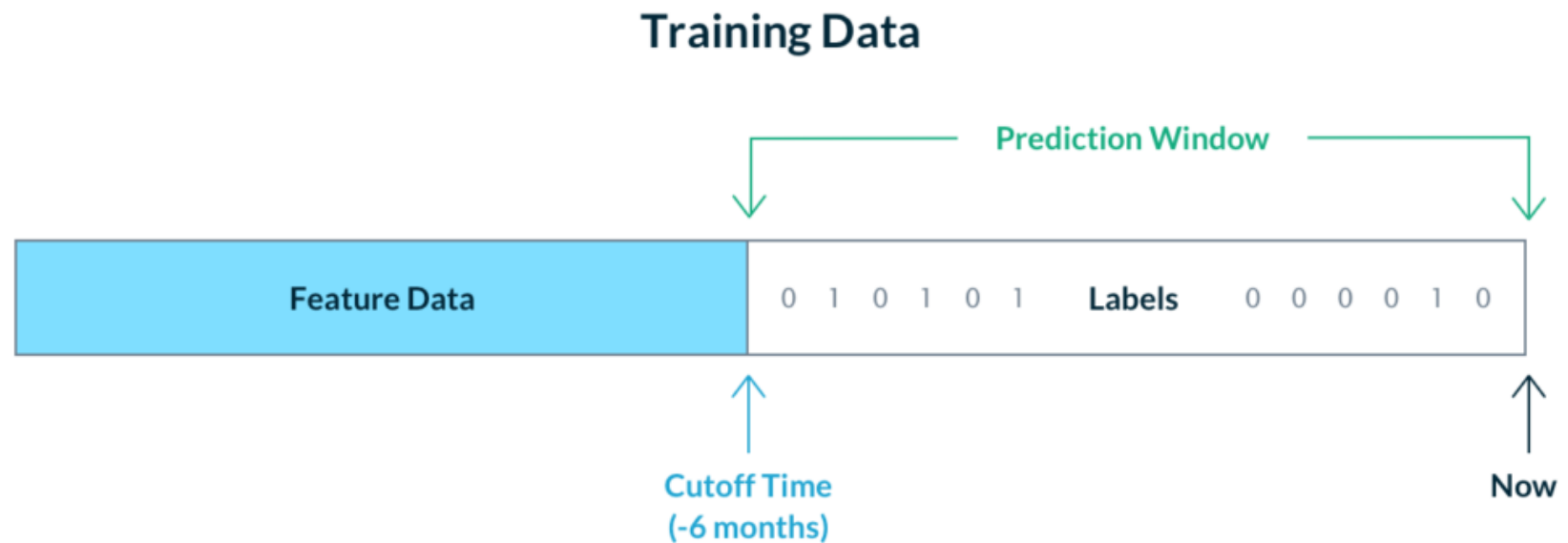
Algorithm Selection

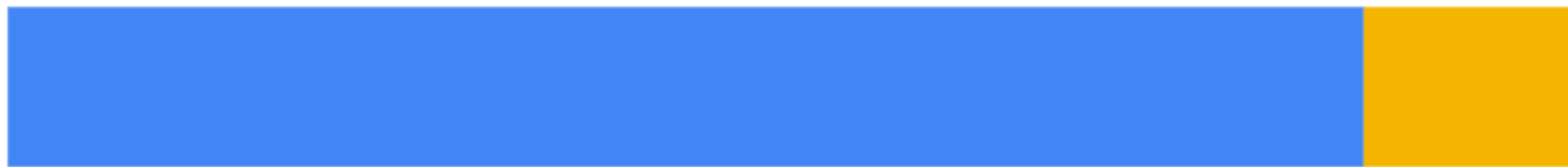
Tuning

Model Evaluation



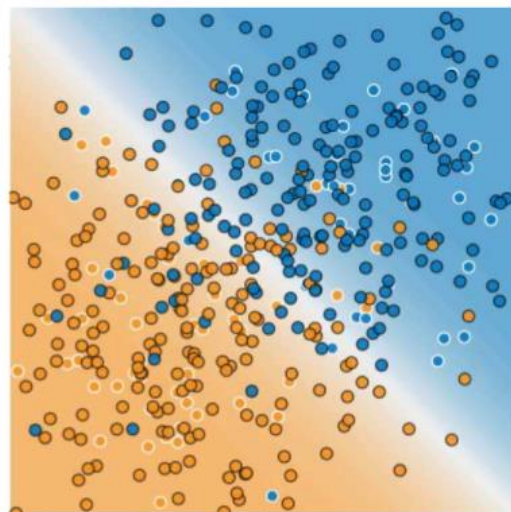
Use historical data to train a model
with known outcome (Target)



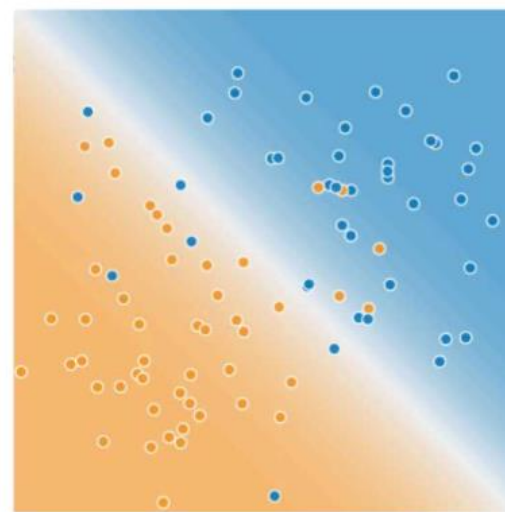


Training Set

Test Set



Training Data



Test Data



Classification and Regression

- Logistic/Linear Regression
- Decision Tree
- Random Forest
- Gradient Boosted Tree

* Use one or some of ML algorithms to TRAIN a model that can be used to SCORE



Lightning-fast unified analytics engine

Spark
SQL

Spark
Streaming

MLlib
(machine
learning)

GraphX
(graph)

Apache Spark



What is Industrialized Machine Learning Ops (MLOps)

- Standardize and Productionize ML Models
- Deploy, Monitor, Evaluate ML Models
- Free Up Data Scientists to Develop New Models



Industrialized Machine Learning Ops (MLOps)

- Harden and Automate ML Model Notebooks
- Develop and Maintain Feature Store
- Build Utilities for Model Development/Analysis/Evaluation
- Monitor Scoring Jobs, Retrain Training Jobs

The background is a dark blue gradient with faint, concentric circular patterns. In the corners, there are white, stylized line art elements resembling circuit traces or neural network connections, with small circles at the end of the lines.

QUESTIONS