Machine Learning

Machine Learning

uses data analysis to capture models of our reality. It can be attributed to the field of AI (artificial intelligence) and is based on the idea that machines are able to learn and adapt similar to how the human brain works.

Demand Analysis

The importance of machine learning is hard to overestimate. Almost any new innovative software is powered by the recent breakthroughs in machine learning or deep learning to be specific. Be it autonomous driving, image recognition, text summarisation or translation tasks, the consensus is that machine learning seems to be the best option currently available to solve these hard problems.

Technology Trends

- Widespread Application in
  - Finance
  - Autonomous Transportation
  - Space Exploration (e.g. Mars Rover AutoNav)
  - Healthcare
- Capsule Networks - enabling better visual processing
- Deep Reinforcement Learning - for general purpose applications (e.g. AlphaGo)
- Generative Adversarial Networks - competing networks generating and ingesting training data
- Transfer Learning - adapting models trained on different tasks to fit another one
- Large Deep Learning Networks

Future Perspectives

- Probabilistic programming - to handle uncertainty and missing information
- Humans working together with machines - to provide labeled input and accommodate outliers
- Even more automation of repetitive tasks
- All-encompassing data collection
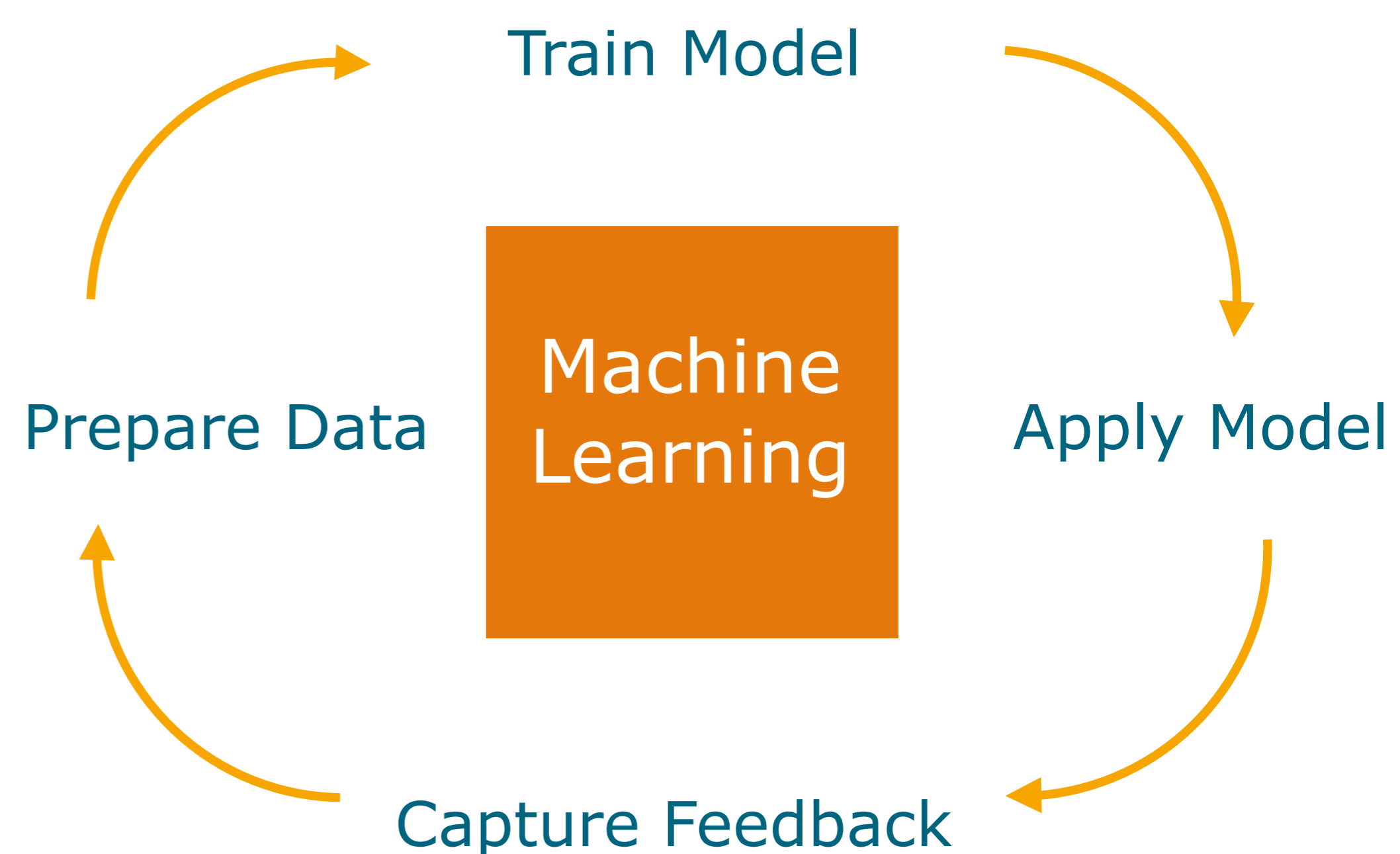
Research

- Gain better understanding of inner workings
- Improve current performance
- Reduce dependency on large training data

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