

Machine Learning with Python

Definition of ML

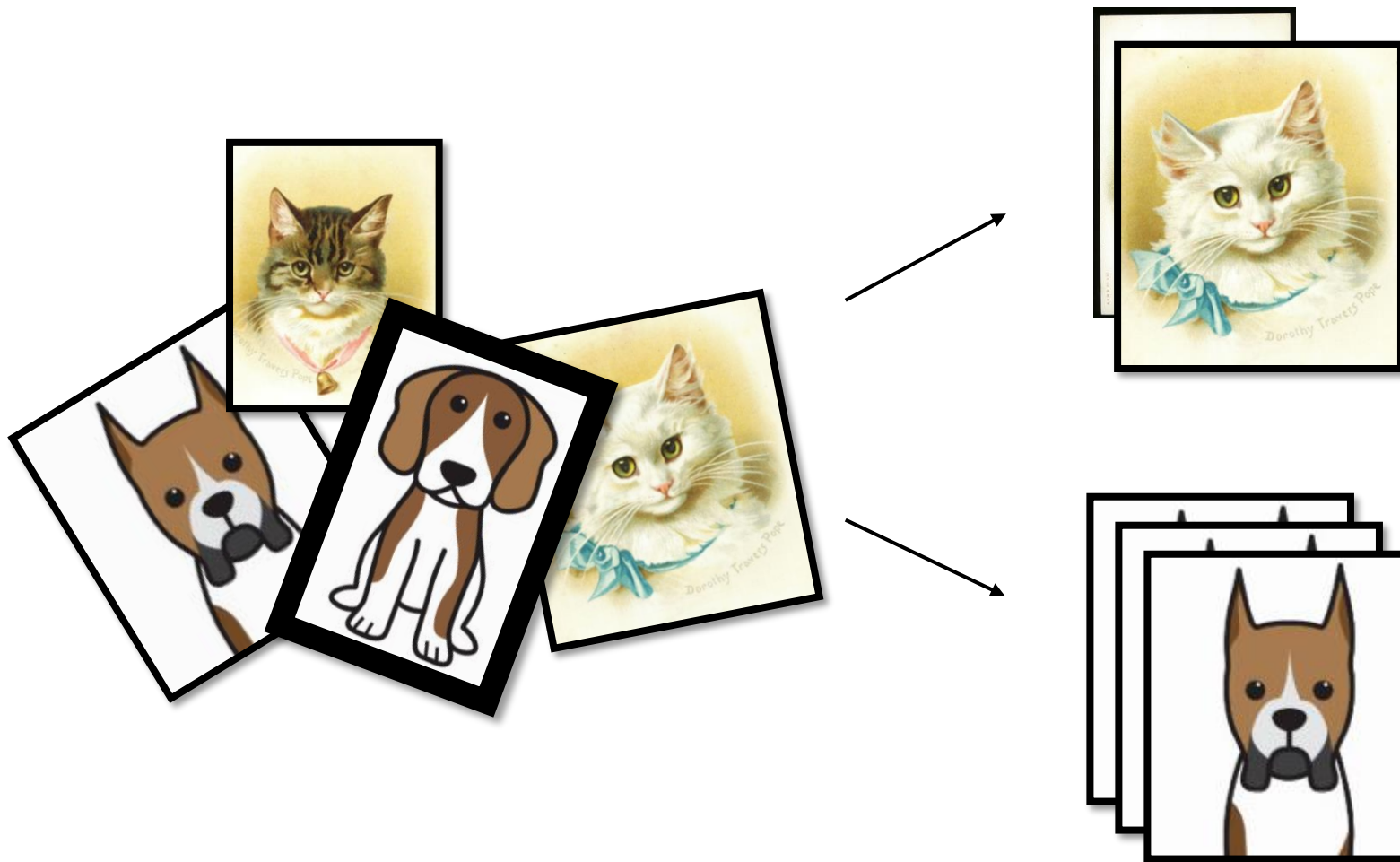
1. The machine learning is the field of study to give the ability to a Machine to learn without being explicitly programmed
2. The ability of a machine to improve its performance based on previous results.

Formal Definition of ML

A program can be 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**

- Tom Mitchell

Simple ML Application



What is Machine Learning

- Getting better at certain task with time
- The act of remembering experience
- Exploiting generalization similarity
- Learning with adaptation

Spam Email detection using Machine learning

Spam email detection

- Email has title and body
- Spam emails contains some specific keywords (like us, tweet, join today, offers, etc.)
- Emails without specific text, which has been marked as spam



Application

- Association Analysis
- Supervised Learning
 - Classification
 - Regression/Prediction
- Unsupervised Learning
- Reinforcement Learning (Semi supervised)

Machine Learning Vs Statistical Analysis

Machine learning is an algorithm that can learn from data without relying on rules-based programming

Subfield of computer science and artificial intelligence and explores the study and construction of algorithms

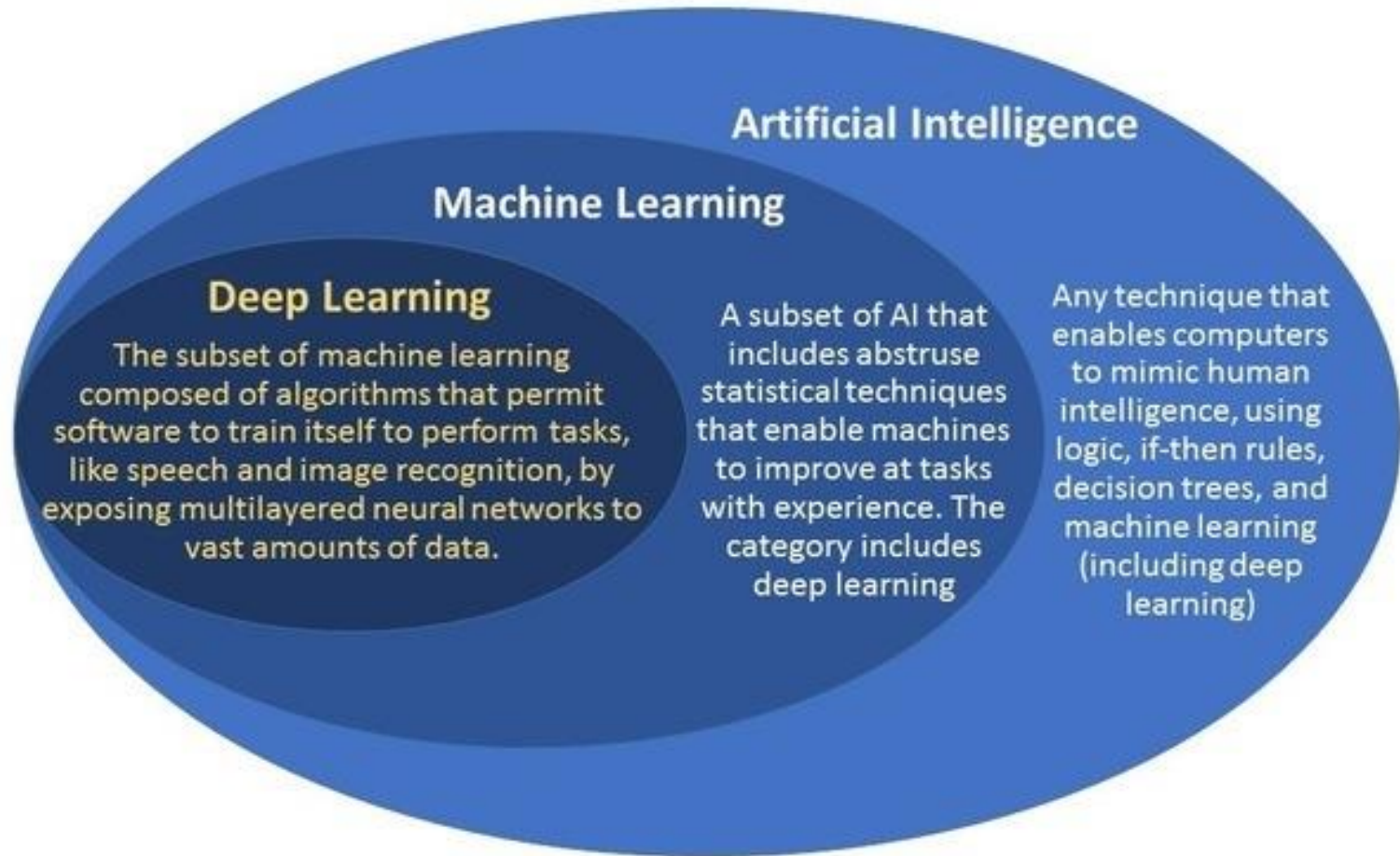
Prediction

Statistical modeling is the formalization of relationships between variables in the form of mathematical equ.

Subfield of mathematics and deals with finding relationships between variables to predict.

Estimation

How are AI and ML different ?



Where else is it used

- Face recognition
- Speech recognition
- Handwriting recognition

Real Life Examples

- Facebook People You May Know
- Product Recommendation
- Virtual Assistants