Introduction to Machine Learning and Artificial Intelligence

What is Machine Learning

- From a limited set of examples, generalize regularities through algorithms and apply them to unknown data.
- In most cases, machine learning learns $p(y|x)$ for discriminative model / $p(x|y)$ and $p(y)$ for generative model.

v.s. Artificial Intelligence)

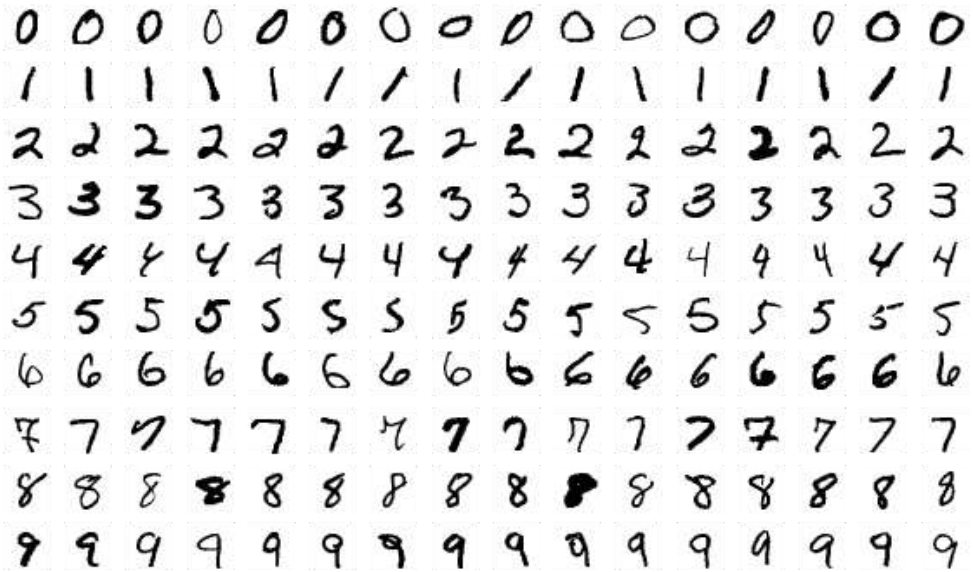
- Intelligence is general topic.
- Machine learning for artificial intelligence means make machine as smart as human.

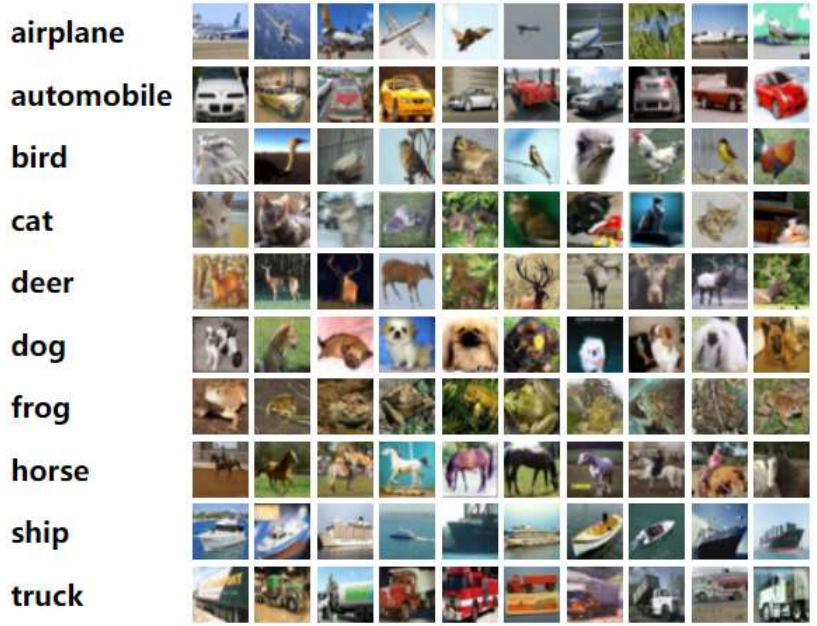
v.s. Statistics

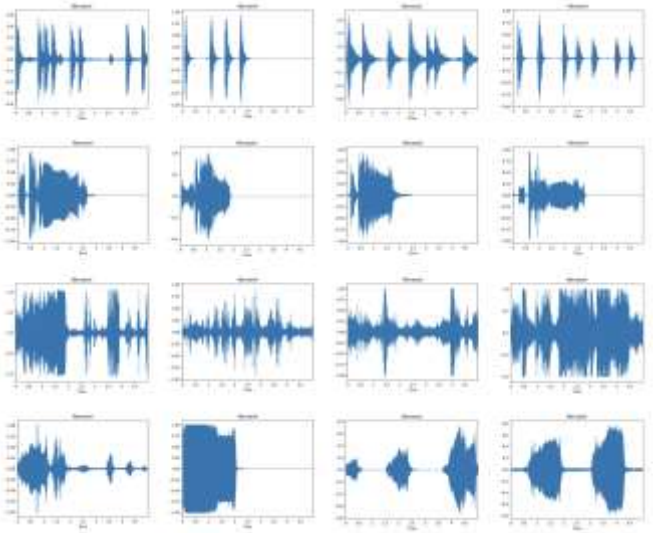
- Statistics emphasizes on means; machine learning emphasizes on ends.
- Probably-approximately-correct Theory; coding practice.

v.s. Data Science

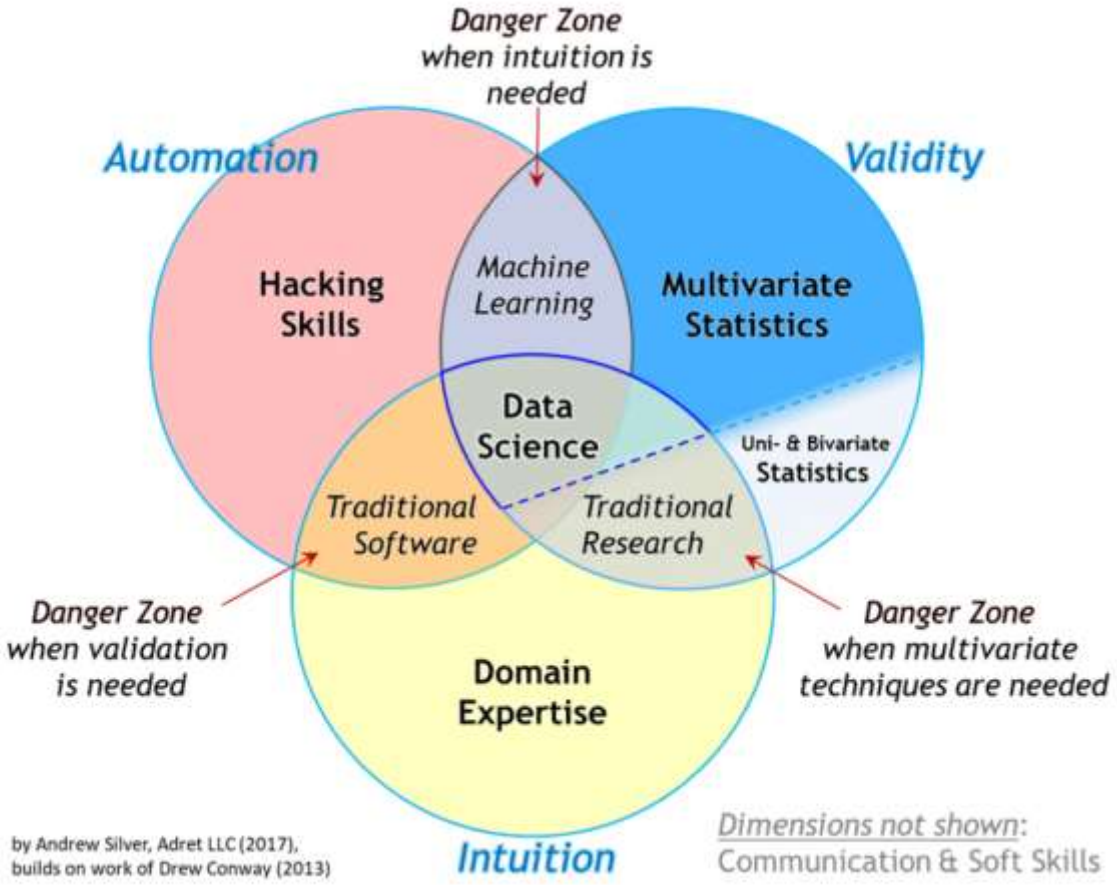
- Data are of complex forms in machine learning







What is Machine Learning



What is Machine Learning

- Calculus
- Probability and Statistics
- Linear Algebra
- Optimization

What is Machine Learning

- From a limited set of examples, generalize regularities through algorithms and apply them to unknown data.
- Theoretically, it is data + algorithm + knowledge.
- Practically, it is data + algorithm + evaluation.