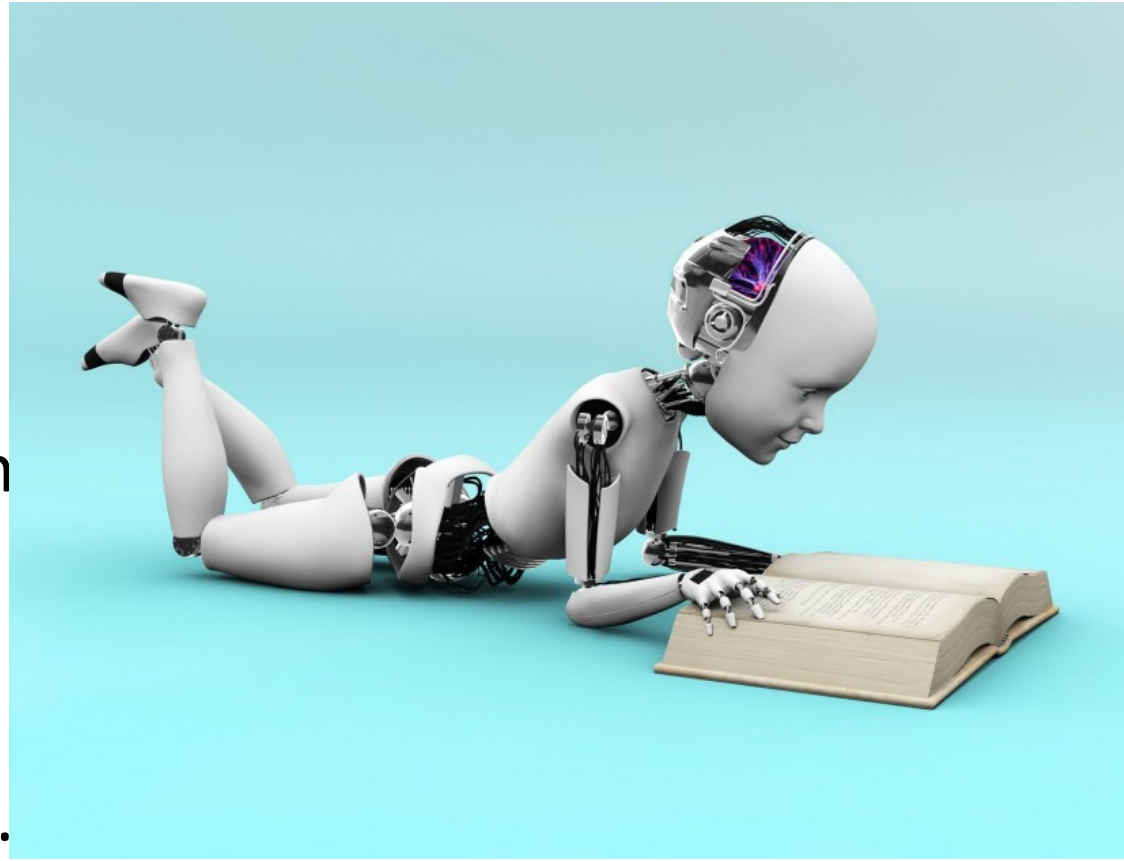
ML - Introduction

Machine Learning

- You have probably written programs (code) in the past.
- You had to program every possible situation Think of "if – then – else" statements.
- What if machines could learn by themselves from their environment or data.



Machine Learning

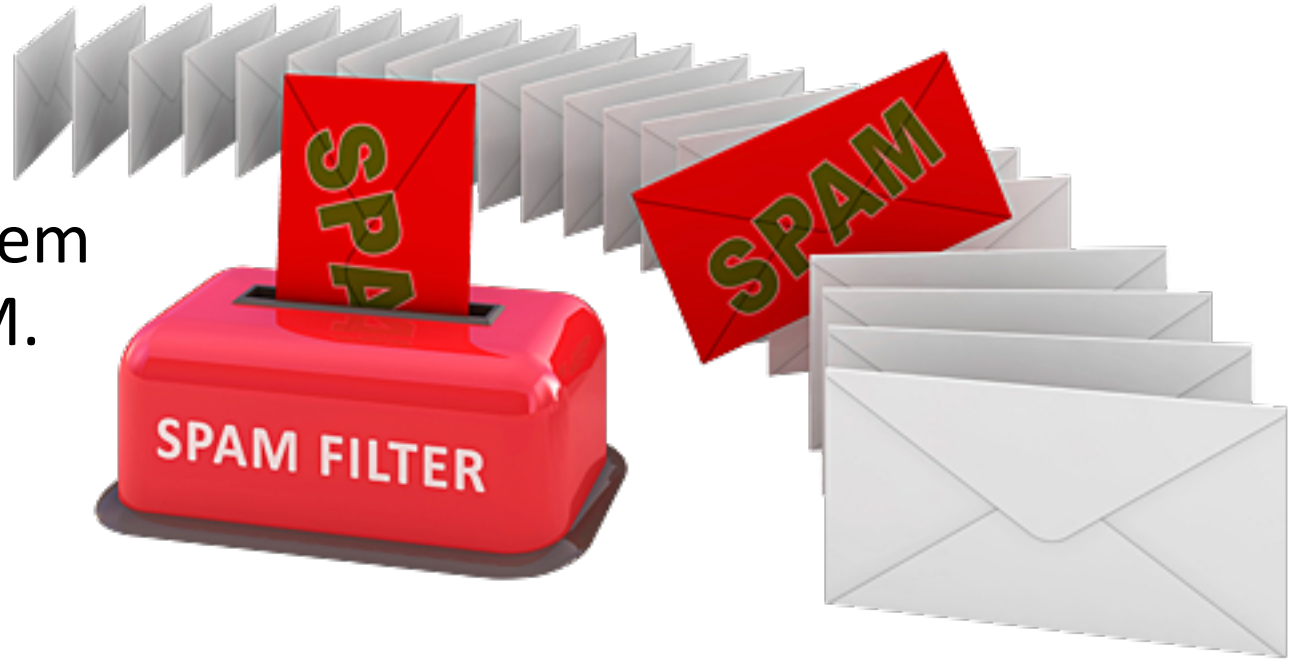
- Machine learning is a method of data analysis that automates analytical model building.
- Using algorithms that iteratively learn from data, machine learning allows computers to find hidden insights without being explicitly programmed where to look.
- Sounds too good to be true? Well, it's already being widely used. Let's look at some examples:

Machine Learning Examples

- Online Recommendation Systems
- System learns from your
  - purchase data
  - browsing history
  - viewing history
  - email data

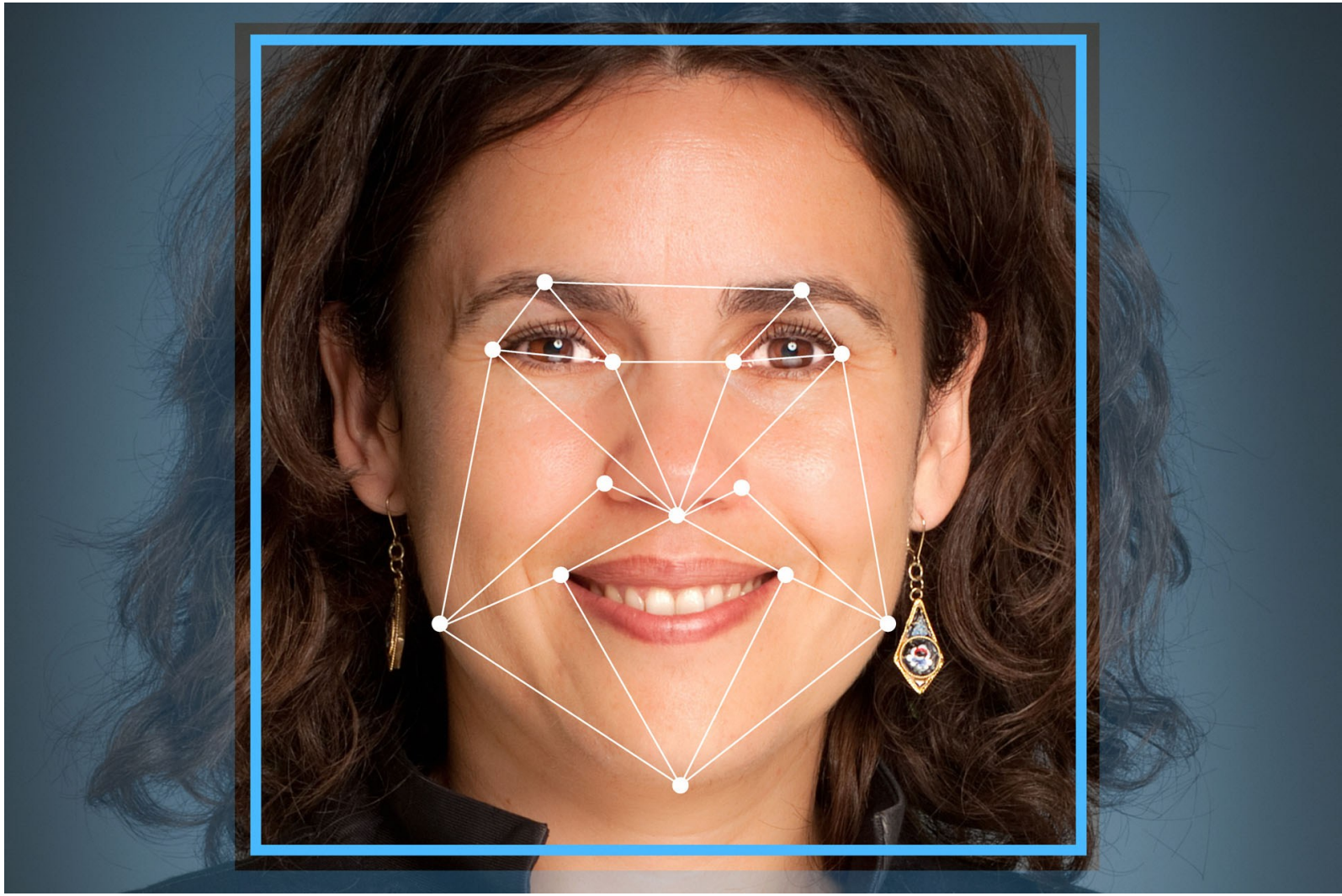
Machine Learning Examples

- Spam Filtering
- Learning from features of spam emails to classify them as either SPAM or NOT SPAM.



Machine Learning Examples

- Facial Image Detection



Famous Machine Learning Examples

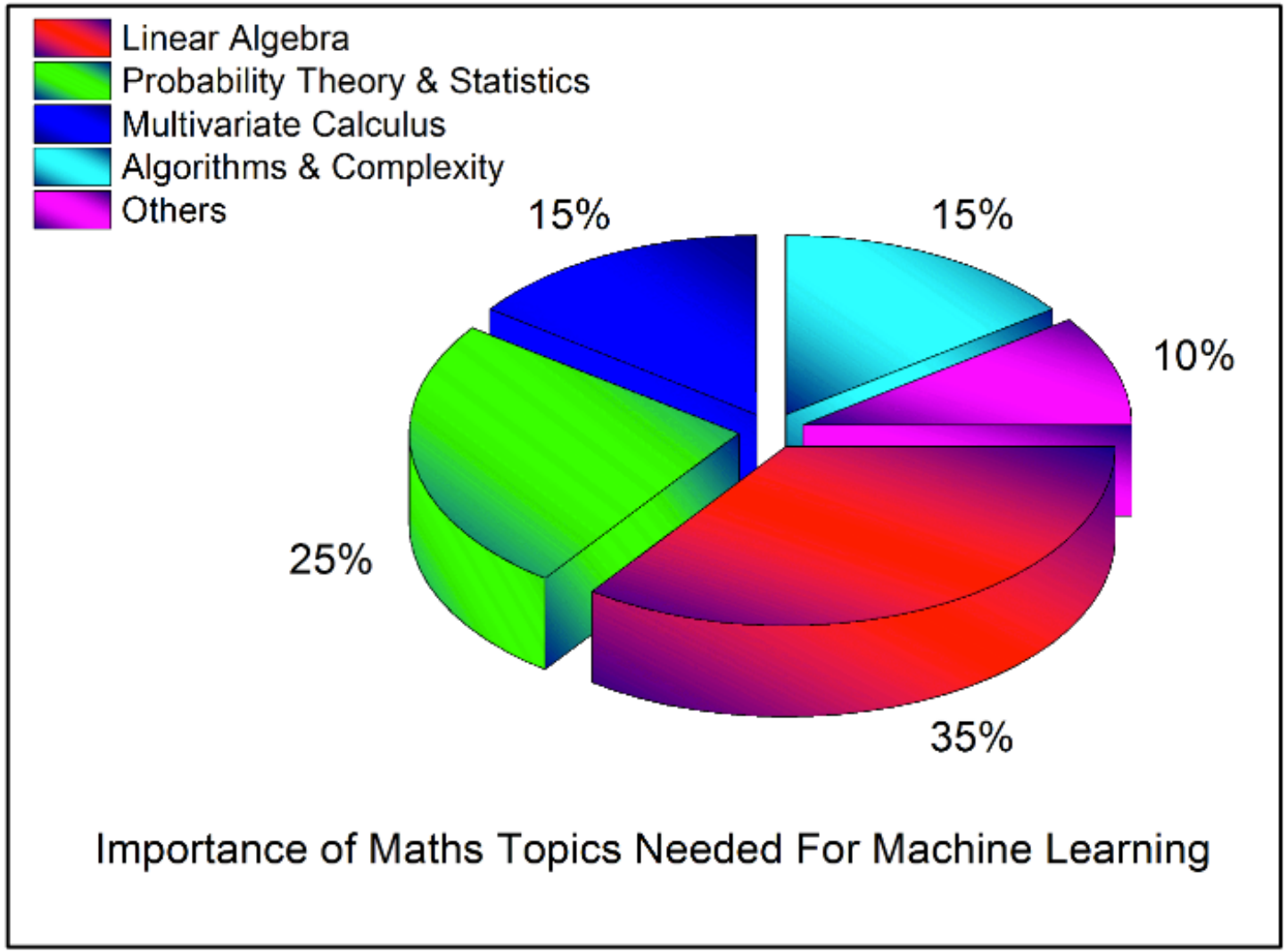
- Google's Deep Mind https://www.youtube.com/watch?v=TnUYcTuZJpM
- Google's Self Driving Car Project https://www.youtube.com/watch?v=TsaES--OTzM&t=5s
- Six Novel ML Applications https://www.forbes.com/sites/85broads/2014/01/06/six-novel-machine-learning-applications/#2cf1c42a1060

Skills Needed

I want to be a machine learning scientist - What do I need to do / learn?

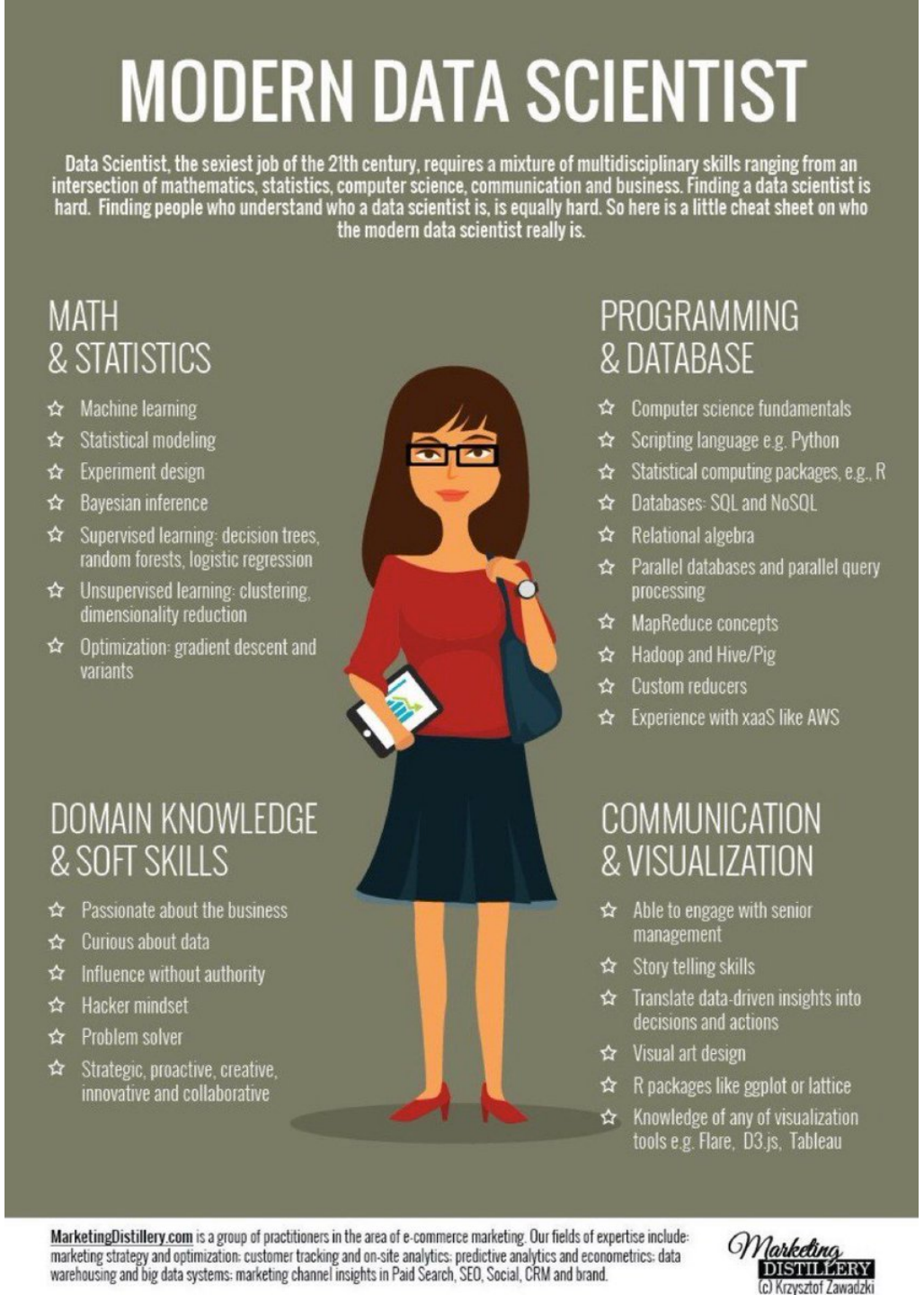
- Strong math background
- Love data
- Programming skills
- Data analysis / pattern identification
- Ability to convey results to clients / users

Math background



https://towardsdatascience.com/the-mathematics-of-machine-learning-894f046c568

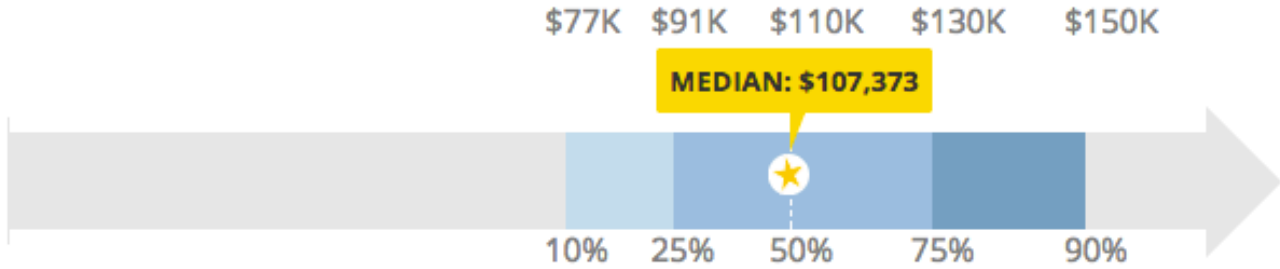
Skills Summary



Salary

Machine Learning Engineer Salary

A Machine Learning Engineer earns an average salary of $100,956 per year. People in this job generally don't have more than 10 years' experience. The skills that increase pay for this job the most are Big Data Analytics and Machine Learning.



Add this chart to your site: 640px 300px

Show Hourly Rate

+ experience | + skill | job

	Range	$0 — $155K
Salary	$76,624 - $147,687	
Bonus	$2,750 - $31,068	
Profit Sharing	$5,000	
Total Pay (?)	**$77,852 - $155,460**	

Country: United States • Currency: USD • Updated: 25 Jul 2017 • Individuals Reporting: 143

Source: http://www.payscale.com/research/US/Job=Machine_Learning_Engineer/Salary

Salary

Machine Learning Engineer Salaries

43 Salaries

Updated Jul 1, 2017

National Avg

$114,826

Min $85k

Max $137k

Dallas-Fort Worth, TX Area Avg

$103,150*

Min $78k

Max $132k

Source: https://www.glassdoor.com/Salaries/machine-learning-engineer-salary-SRCH_KO0,25.htm

Opportunities

- All major companies are seeking skilled machine learning / data scientists.
- Too many to name ☺

Let's get started

- What will this course teach me?
  - Basics of ML
  - Review of probability and statistics
  - Foundation of learning
  - Various learning instances (techniques)
  - How to apply ML to real world datasets
  - How to analyze data and results
  - How to communicate those results