AI Essentials

Machine Learning

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Machine Learning

Introduction

- The most popular technique of predicting the future or classifying information to help people in making necessary decisions.
- Trained over instances or examples through which they learn from past experiences and also analyze the historical data

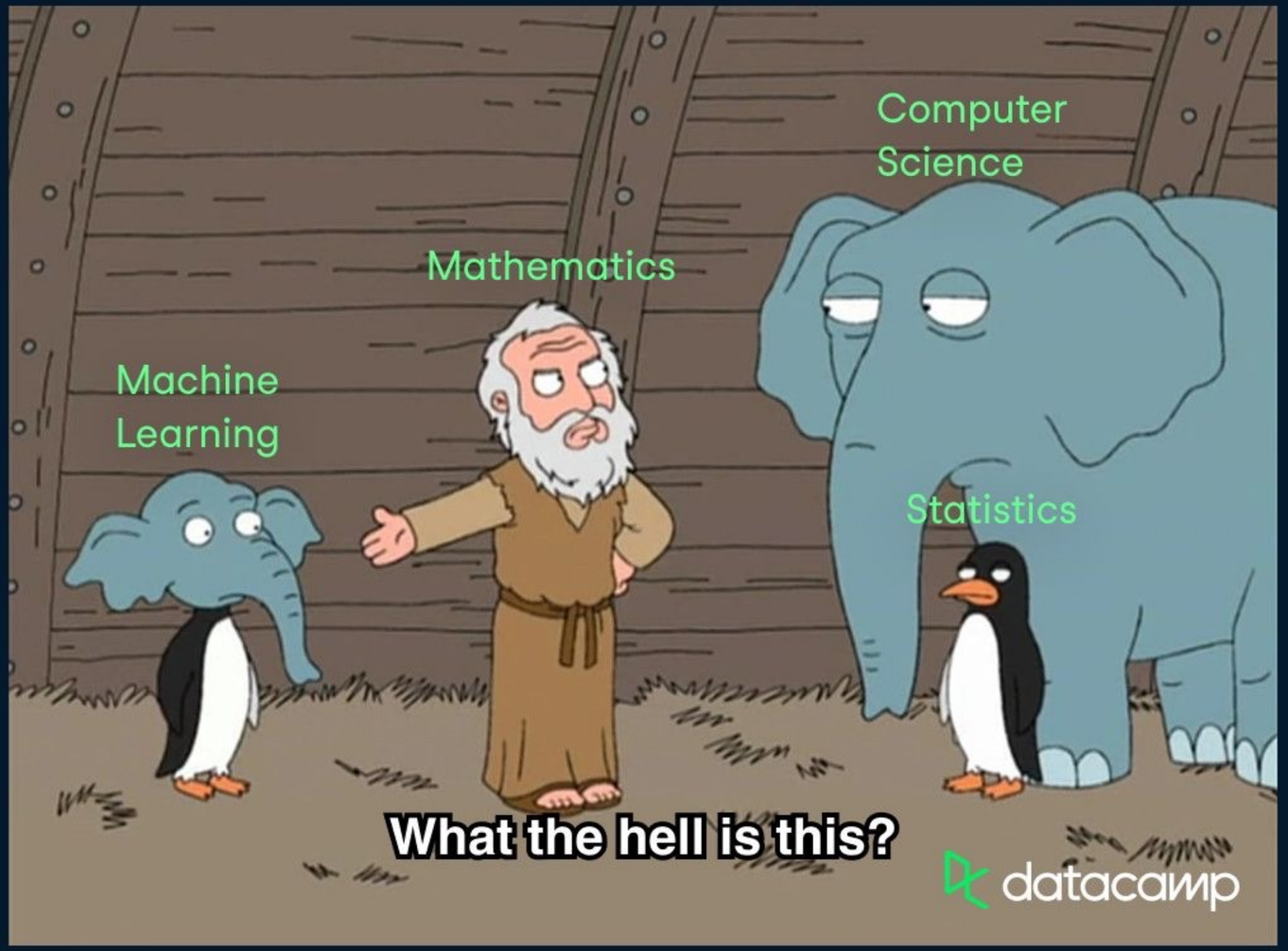
Machine Learning

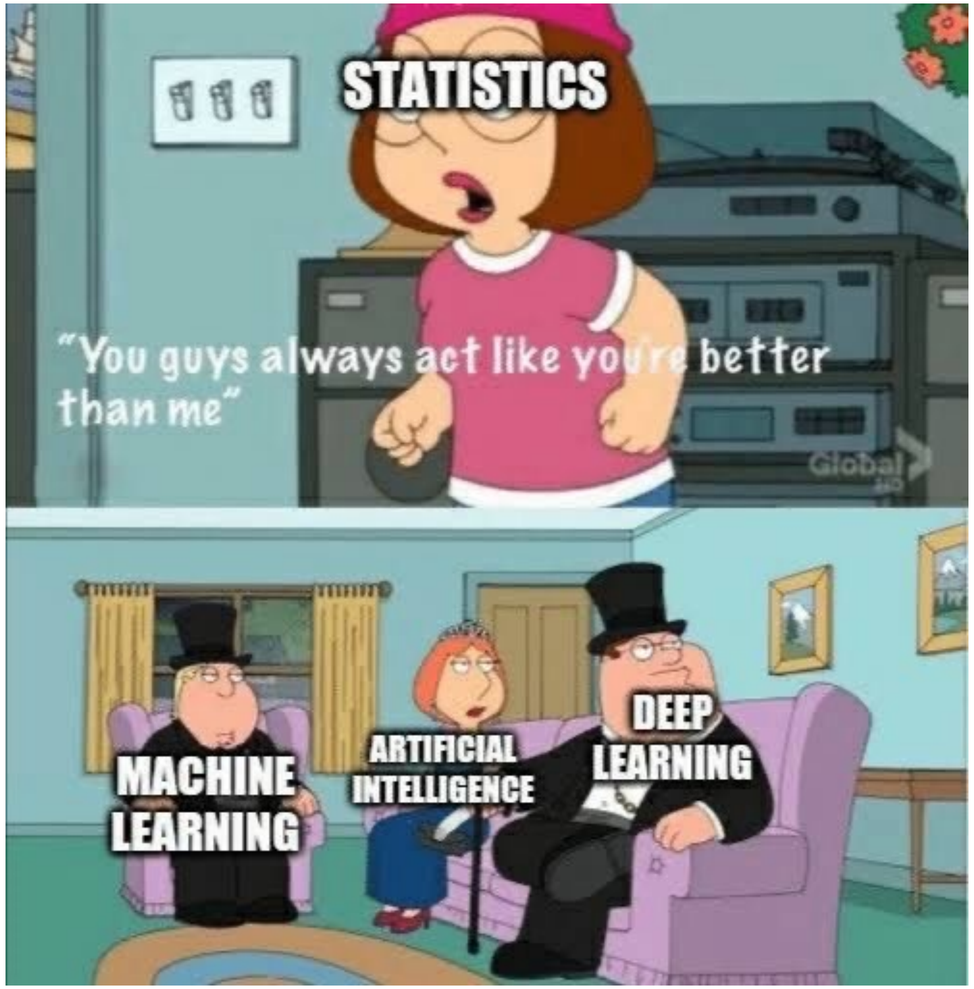
Introduction

- Develop intelligent systems that are capable of taking decisions on an autonomous basis
- Learn from the past instances of data through statistical analysis and pattern matching
- Optimize and tune the model such as tuning the hyperparameters


MACHINE LEARNING
Let's see who you really are!
STATISTICS

An accurate description of Machine Learning




STATISTICS
"You guys always act like you're better than me"
MACHINE LEARNING
ARTIFICIAL INTELLIGENCE
DEEP LEARNING

Types of ML

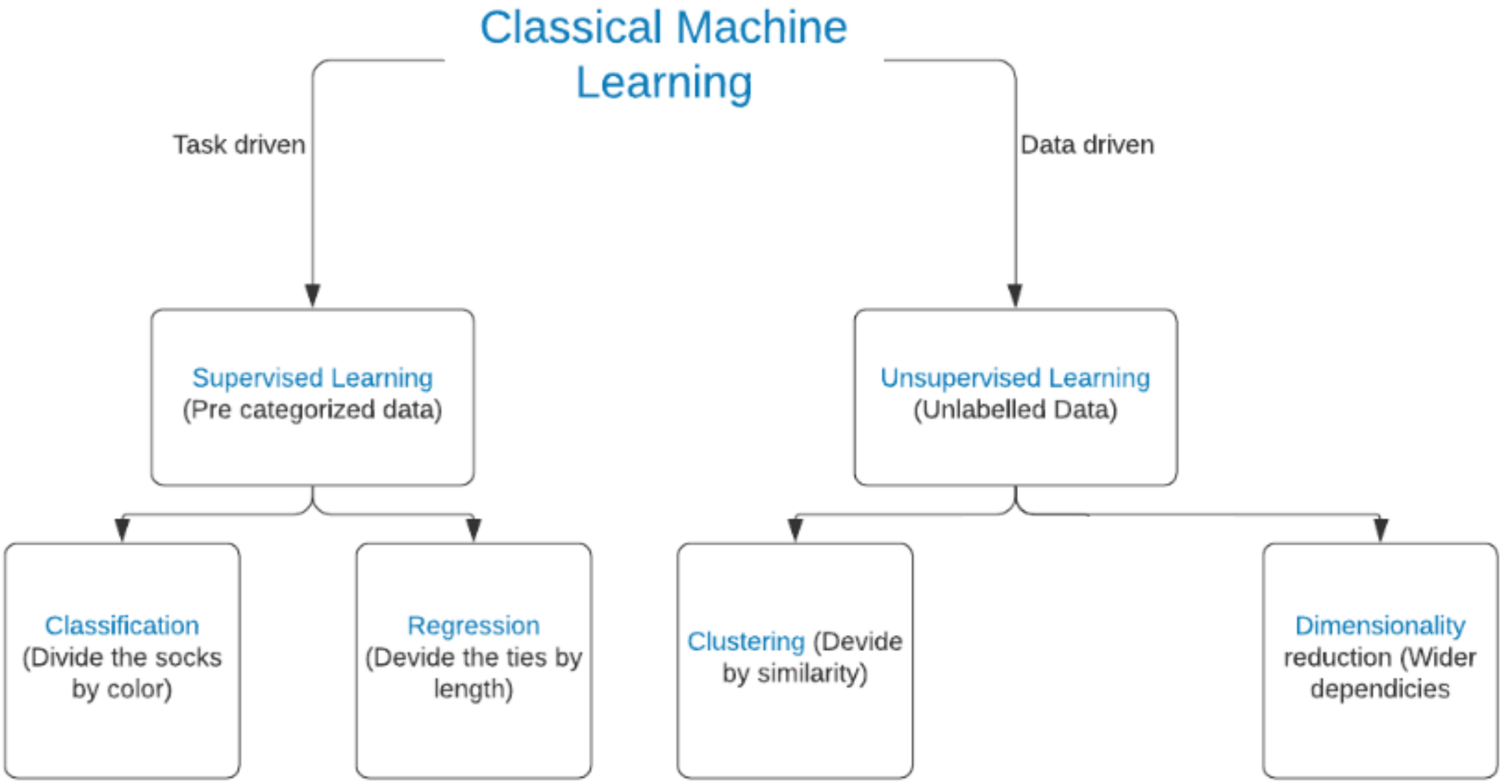
- Supervised Learning
- Unsupervised Learning
- Reinforcement Learning

Supervised learning

- The dataset is labeled
- Clear and distinct mapping of input and output
- Example: spam filtering

Unsupervised learning

- Deals with unlabeled data
- Identifies the patterns within the dataset and learns them
- Learning process is solely based on finding patterns in data and making conclusions


Classical Machine Learning
Task driven
Data driven
Supervised Learning (Pre categorized data)
Unsupervised Learning (Unlabelled Data)
Classification (Divide the socks by color)
Regression (Devide the ties by length)
Clustering (Devide by similarity)
Dimensionality reduction (Wider dependicies

Types of ML

- **Classification**
  - Fraud detection
  - Email Spam Detection
  - Image Classification
  - Diagnostics
- **Regression**
  - Risk Assessment
  - Score Prediction
- **Dimensionality**
  - Text Mining
  - Face Recognition
  - Big Data Visualization
  - Image Recognition
- **Clustering**
  - Targeted Marketing
  - Biology