ENGR 4350: Applied Deep Learning

Introduction

08/29/2022

Outline

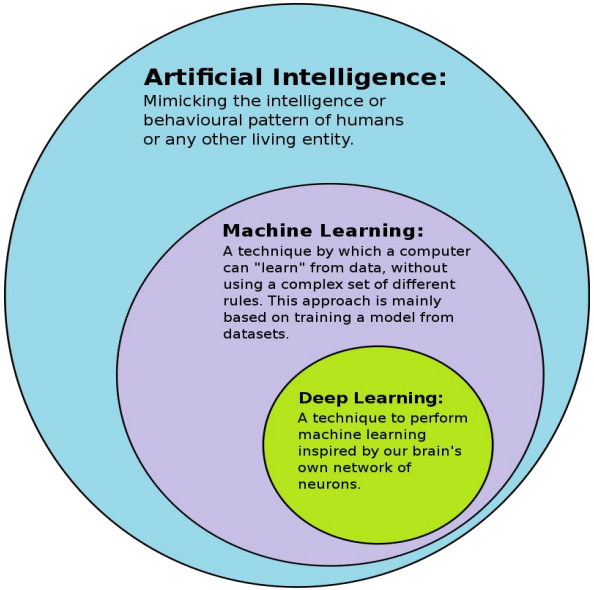
- Course related information
- Introduction to deep learning
- Github Classroom

Course Information

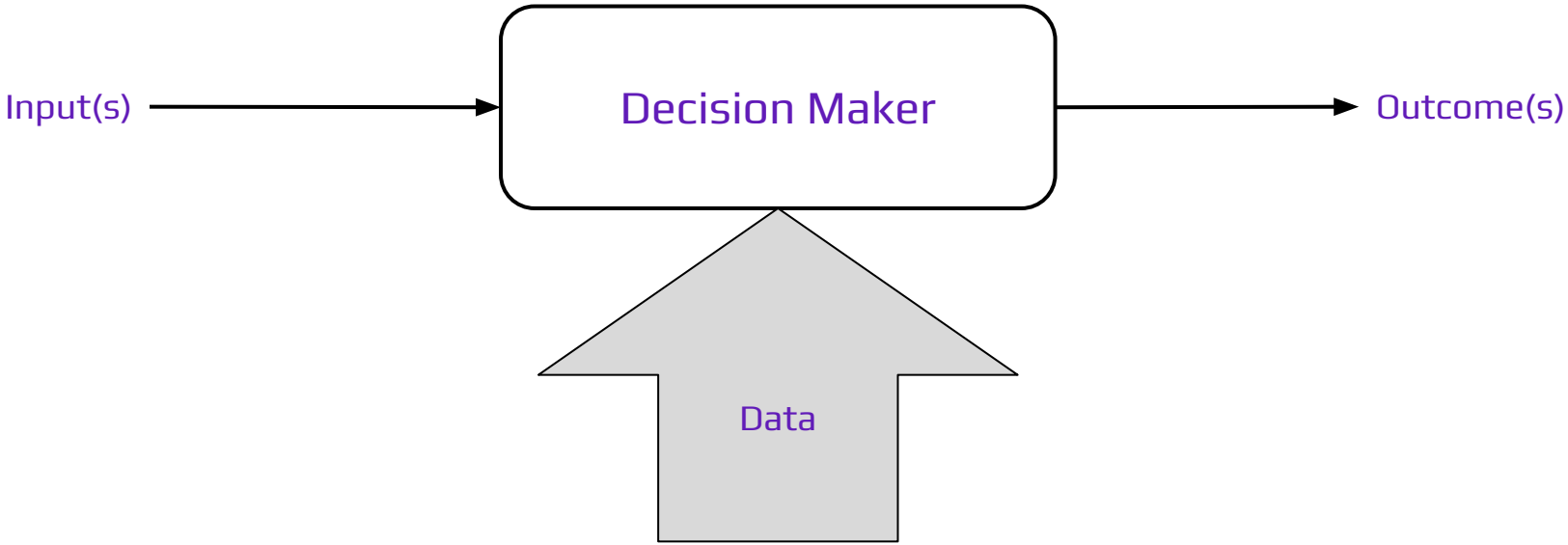
- Instructor: Lin Zhang
- Course Materials: https://linzhanguca.github.io/applied_deep_learning-2022
- Class/Lab: 01:00 PM - 02:15 PM, M/W, CCCS105
- Office Hour: 10:00 AM - 12:00 PM, Monday
- Office Locations: LSC110 / LSCA105 / LSC013

Introduction to Deep Learning

- Artificial Intelligence is the science and engineering of making intelligent machines, especially intelligent computer programs.
- Machine learning is a branch of artificial intelligence (AI) and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy.
- Deep Learning is a subfield of machine learning concerned with algorithms inspired by the structure and function of the brain called artificial neural networks.



Learn from Data



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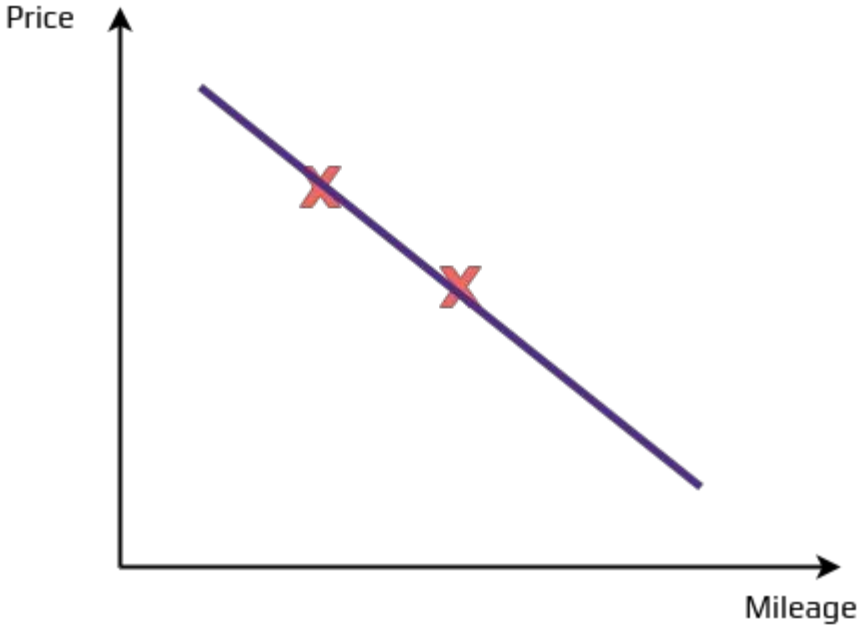

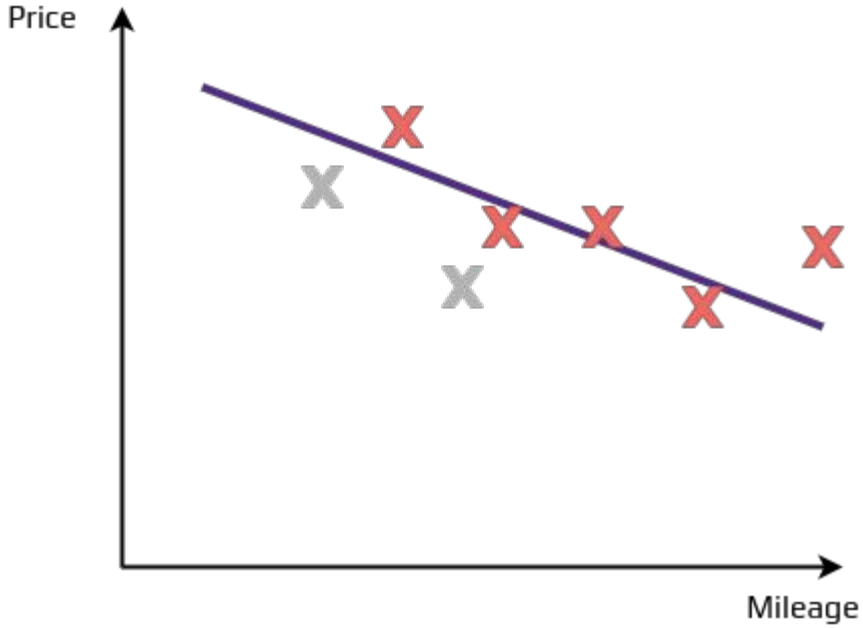

Deep Learning Examples

- Autonomous Driving
- Facial Recognition
- Object Detection
- 3D Model Reconstruction
- Translation
- Speech to Text / Text to Speech
- Compose Novel / Image / Music
- Medical and Pharmaceutical
- Investment
- Gaming

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Deep Learning in Robotics

- Object Detection
- End-to-End Driving
- Behavioral Clone
- SLAM
- Self-Taught Learning

Pros

- Interesting.
- Well-paid jobs.
- Applicable to (almost) anything.
- Easy to get started.
- End-to-End process.

Cons

- Uncertainty.
- Data.
- Debug.
- Popular.

Our Goals

- Neural Networks
- Convolutional Neural Networks
- (Optional) Deep Reinforcement Learning

Github Classroom

1. Create a Github account
2. Accept assignment
3. Update repository