Introduction to Deep Learning

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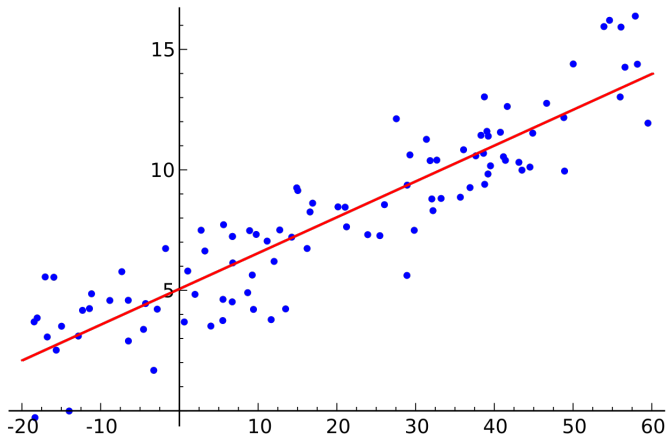
March 25, 2017

Overview

Review of basic principles of machine learning

- Three components to any ML problem: the **task**, the **performance measure** and the **data**
- Essential definitions
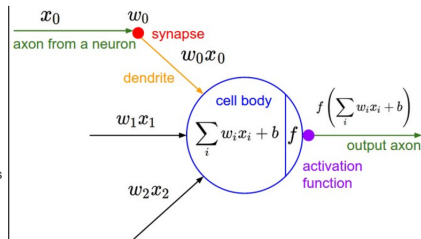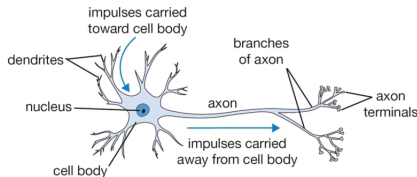 - **Features**
  - **Model**
  - **Parameters**

Example: Linear Regression

- Can we **predict** y given x, using the model $\hat{\mathbf{y}} = m\mathbf{x} + \mathbf{b}$?
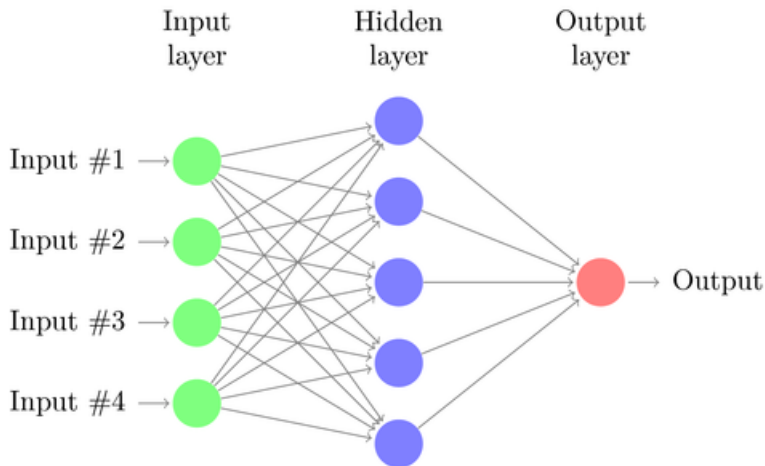
Introduction to Neural Networks

- Neurons are the building blocks of neural networks
- Each neuron is a **function**: $y = f(\mathbf{w}^T \mathbf{x} + \mathbf{b})$

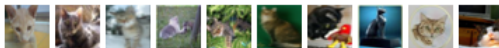# Neural Networks are Layers of Neurons

What are Neural Networks Good For?
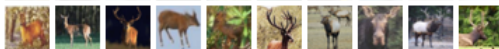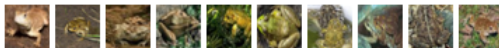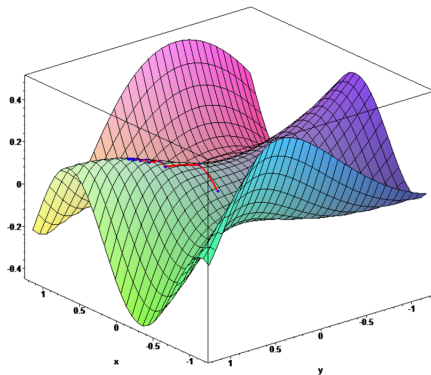
airplane

automobile

bird

cat
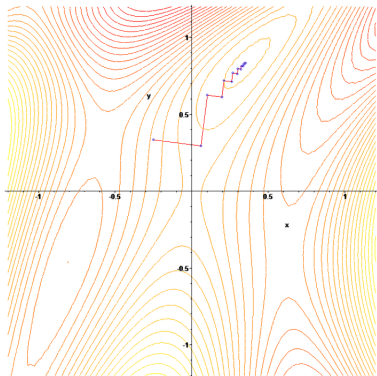
deer

dog

frog

horse

ship

truck

Training Neural Networks: Gradient Descent

- Time to **build something**!

Thanks!

Resources and references: yixinlin.net/intro-ml