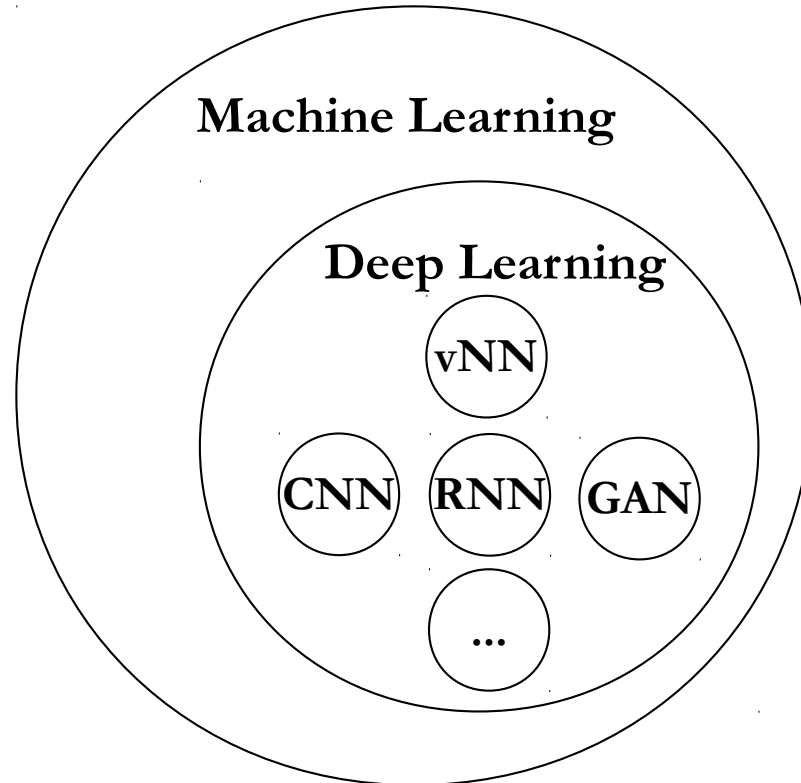
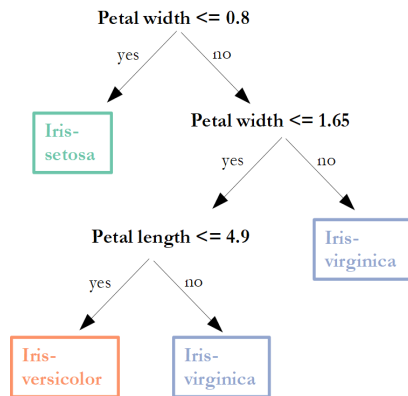


Basics of Deep Learning



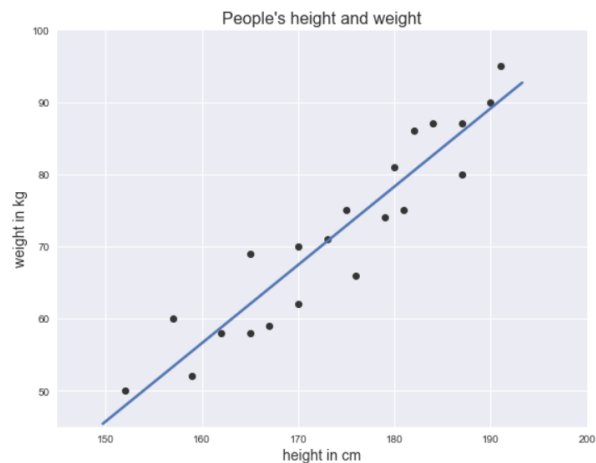
vNN – vanilla (feedforward) Neural Network
CNN – Convolutional Neural Network
RNN – Recurrent Neural Network
GAN – Generative Adversarial Network

Decision Tree



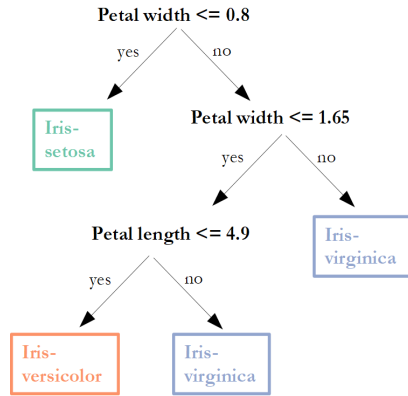
How does the algorithm make a decision?

Linear Regression



$$\text{weight} = 1.085 * \text{height} - 117.017$$

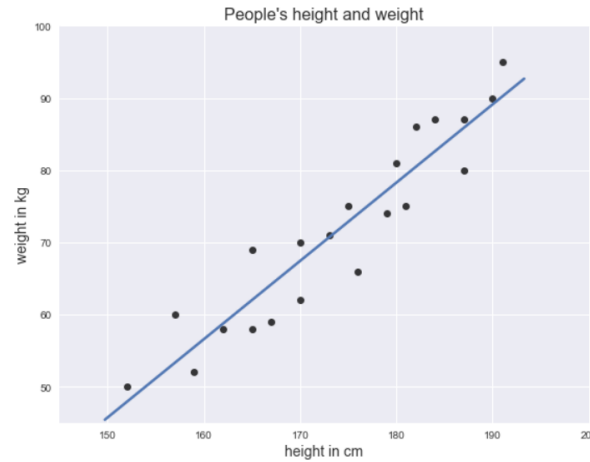
Decision Tree



How does the algorithm make a decision?

How do you determine the right parameters for the algorithm?

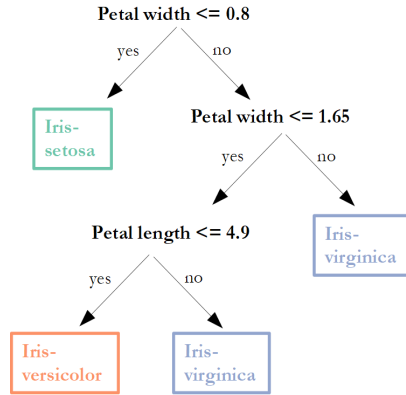
Linear Regression



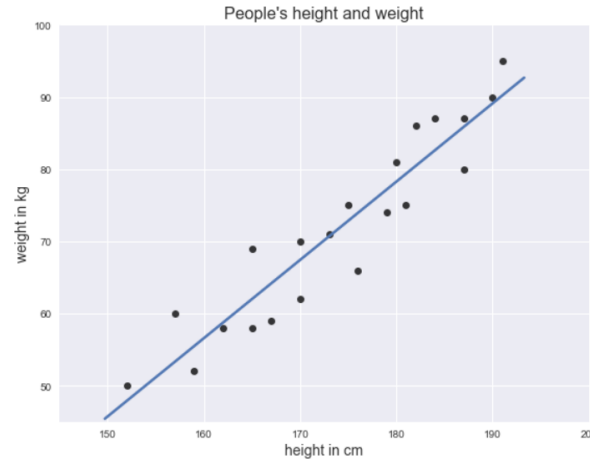
$$\text{weight} = 1.085 * \text{height} - 117.017$$

Decision Tree

How does the algorithm make a decision?

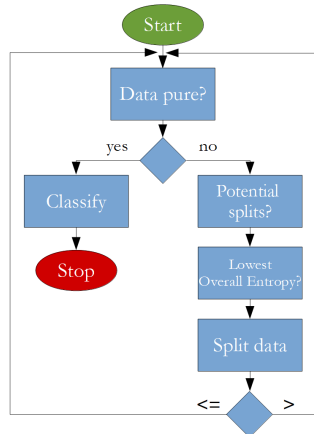


Linear Regression

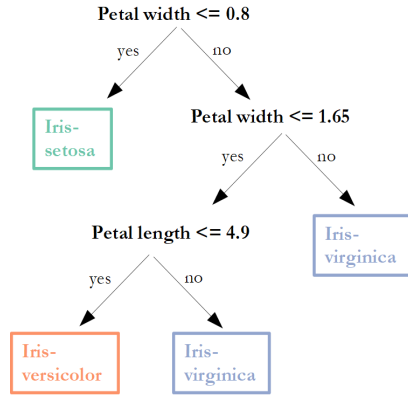


$$\text{weight} = 1.085 * \text{height} - 117.017$$

How do you determine the right parameters for the algorithm?

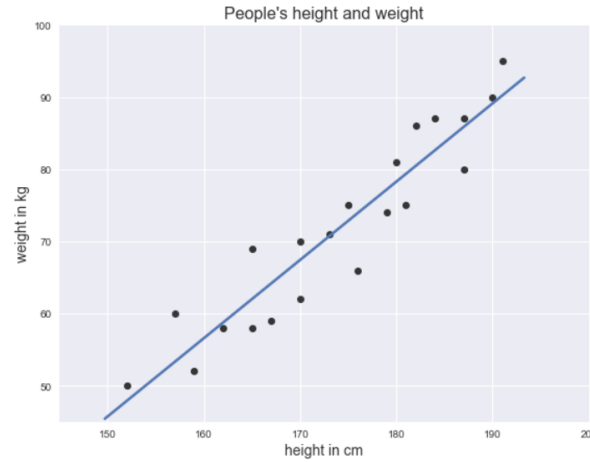


Decision Tree



How does the algorithm make a decision?

Linear Regression

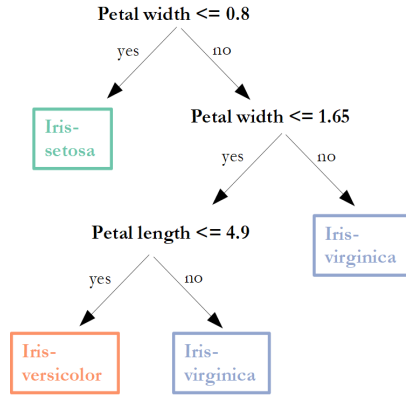


$$\text{weight} = 1.085 * \text{height} - 117.017$$

How do you determine the right parameters for the algorithm?

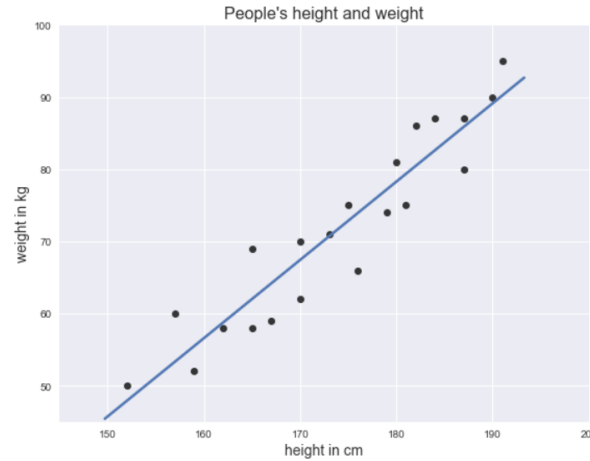
$$\text{Overall Entropy} = \sum_{j=1}^2 p_j \cdot \text{Entropy}_j$$

Decision Tree



How does the algorithm make a decision?

Linear Regression

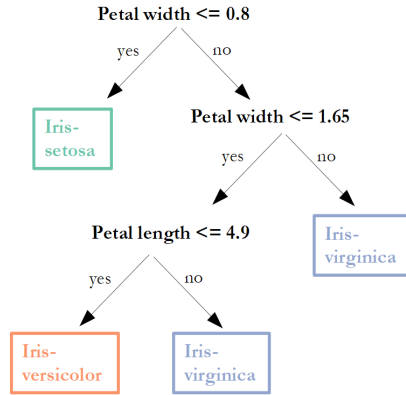


$$weight = 1.085 * height - 117.017$$

How do you determine the right parameters for the algorithm?

$$Entropy = \sum_{i=1}^c p_i \cdot (-\log_2 p_i)$$

Decision Tree

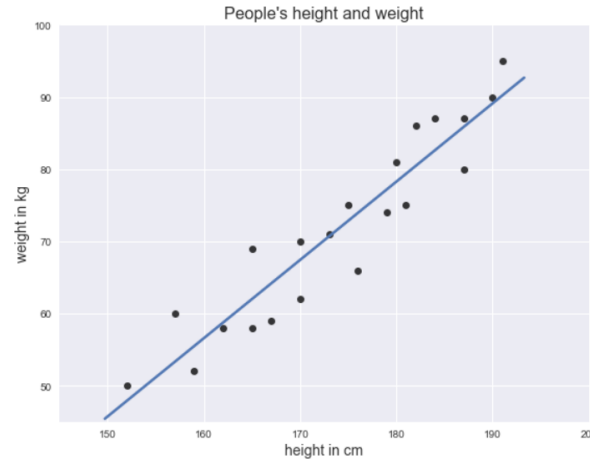


How does the algorithm make a decision?

How do you determine the right parameters for the algorithm?

$$\text{Entropy} = \sum_{i=1}^c p_i \cdot (-\log_2 p_i)$$

Linear Regression



$$\text{weight} = 1.085 * \text{height} - 117.017$$

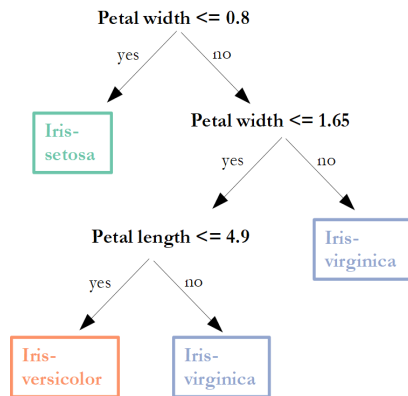
$$y = mx + b$$

ordinary least squares:

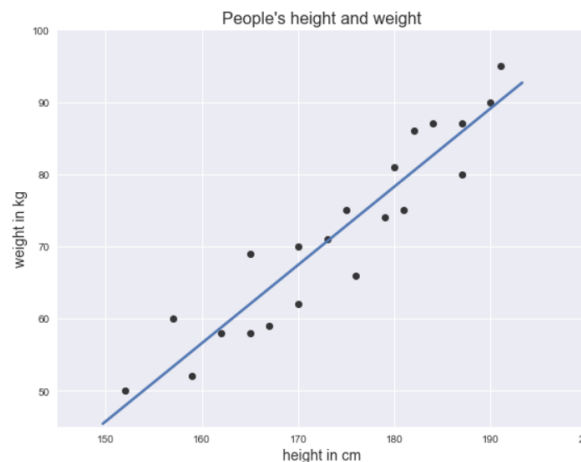
$$m = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sum_{i=1}^n (x_i - \bar{x})^2}$$

$$b = \bar{y} - m\bar{x}$$

Decision Tree



Linear Regression



$$\text{weight} = 1.085 * \text{height} - 117.017$$

$$y = mx + b$$

ordinary least squares:

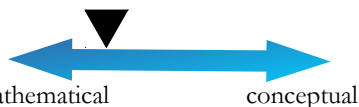
$$m = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sum_{i=1}^n (x_i - \bar{x})^2}$$

$$b = \bar{y} - m\bar{x}$$

How does the algorithm make a decision?



How do you determine the right parameters for the algorithm?



$$\text{Entropy} = \sum_{i=1}^c p_i \cdot (-\log_2 p_i)$$

Deep Learning

How does the algorithm make a decision?



How do you determine the right parameters for the algorithm?

