

Intro to AI and Neural Networks (Summer 2023)

Assignment 03

Exercise 1 (*NumPy*)

Take another look at exercise 1 of assignment 2. In this exercise, your task was to implement the spam detection model from the lecture using Python. Since you are now familiar with NumPy, try to substitute as much of the pure Python code with improved NumPy code. Place special focus on lists.

Exercise 2 (*Categorizing machine learning problems*)

What kind of learning techniques (supervised, unsupervised or reinforcement learning) could be applied to learn the following tasks? In case of a supervised learning problem, please specify the type of the target value (classification vs. regression). Additionally, map the learning problems to the three components in the definition of learning from Mitchell.

- a) Learning to play tennis
- b) Detecting groups of similar customers
- c) Recommending movies for user of a streaming platform
- d) Learning to play chess
- e) Detecting unusual traffic in a network