PEP – Machine Learning NLP

Objective and Motivation

Machine learning is an essential tool when working in data sciences. It helps increase efficiency when analyzing data, through methods such as clustering, linear regression, thematic analysis or speech recognition. As a lot of work in Engineering Psychology involves studying consumer behavior or preferences, having access to these machine learning tools could be useful for quantifying the qualitative data yielded from interviews or think aloud experiments. Having knowledge about a variety of tools available will also be useful for designing experiments, as it will come with knowledge of the type and format of data useful for effective data analysis.

The objective of this course will be to gain an overview and attain knowledge about certain machine learning methods with a focus on NLP, as well as implementing them using python.

Knowledge

- Basic understanding of machine learning algorithms
- Understanding of key concepts within the NLP space
- Understanding the concept training models

Skills

- Be able to use python programming language
- Be able to find resources and libraries to facilitate implementation of selected machine learning methods

Competences

- Be able to communicate results using correct notation and terminology
- Be able to train and validate NLP algorithms
- Be able to implement working Natural Language Understanding with a focus on sentiment analysis

Workload

The workload of this course will include the following:

- Reading from textbooks
  - Hands-on Scikit-Learn for Machine Learning Applications Data Science Fundamentals with Python; David Paper 2020 (Link to source) – Intro to python as a data science tool
  - Natural Language Processing – A Textbook with Python Implementation; Raymond S. T. Lee (Link to source)
- Following workshops
  - Natural Language Processing – A Textbook with Python Implementation; Raymond S. T. Lee – Chapter 10-16 (Link to source)
- Supplementary
  - Online videos giving instructions on programming in python
  - Documentation for necessary libraries to implement NLP algorithms