ML Project

Jonas Eckhoff, Timo Greve, Max Lewerenz, Giulia Maesaka, John-Robert Wrage

May 2020

1 Initiation Phase

1.1 Goals

- Learn how to work together in a project. Especially learn how to organize and manage the project work. In addition to that we want each member of the group to get familiar with working with a version-control platform to contribute to a software project (in this case we want to focus on GIT).
- Research on different Machine Learning algorithms and find advantages and disadvantages for each of them for a given machine learning problem. The Goal is finished if we have a collection of Algorithms we can use for future problems. Find out which algorithm is most suitable for a given problem that should be solved by machine learning.
- Write a documentation in Latex containing our aquired knowledge and progress.
- Implement at least one machine learning algorithm in Pyhton and optimize its accuracy. The algorithm should classify emotions of faces in an input image as required by our "customer".

1.2 Steps to archive the goals

- For the first Goal it is important to review our progress and document (in written form) what we have done. Furthermore we have to communicate as a team. To archive this we scheduled weekly meetings as a group to exchange on our progress as individuals and assign tasks for the next week. Also we have meetings with Mr. Beckmann every other week to review our work. Regarding the version control we will have a short training headed by one of us, or a self made instruction document on how to contribute to GIT.
- The research on different machine learning algorithms will be split between the group members and results will be presented and collected in the final documentation.

- The implementation can be done after the first research phase. We will agree on at least one algorithm that seems most suitable for our problem (emotion classification from images) to us. Then the programming tasks can be split (preparing a training set, implementing an algorithm, displaying results, creating a GUI, etc.).
- When a functioning version of our classification is running we can research on how to optimize the parameters of our program and try optimizing our own algorithm.

1.3 Possible risks and assumptions

- One problem could be the lack of programming experience of the group. None of us have worked on a larger software project before which could raise some problems.
- Another risk is not finding the right information for our research questions. The lecture is rather theoretically and topics might occur late in the course of the lecture.
- When implementing the algorithm we might need a training set with images. Creating a training set on our own would take a lot of time and work that we probably do not have. That has as a consequence that we have to rely on external data.