IANNwTF WS 20/21

Course Organisation

Charlie, Annie, Nion and Leon

University of Osnabrück

October 26, 2020

Weekly Schedule

- Lecture
  Monday - Wednesday
- Practise Session / Flipped Classroom
  Thursday 16:00 - 18:00
- Coding Support / Q&A
  Friday 12:00-16:00, Tuesday 16:00 - 19:00

Lecture

- No fixed timeslot!
- Lecture contents on Courseware (texts, videos, links,...)
- Will be uploaded Monday morning
- you can work through the lecture content self-paced whenever it fits you

Practise Session / Flipped Classroom

- Thursday 16:00 - 18:00
- Discuss Topics, some recap exercises, Live Coding Problems
- Idea of flipped classroom: you work through the content yourself and bring questions / points that you want to discuss to the session
- **Important:** come prepared! look at the content before the flipped classroom session!

Coding Support / Q & A

- Friday 12:00-16:00, Tuesday 16:00 - 19:00
- Voluntary support offer
- Time slot in which we are available to help with coding problems or questions concerning the lecture content

Homework

- Weekly assignments
- Done in groups of 3 $\rightarrow$ sign up on StudIP $\rightarrow$ Participants $\rightarrow$ Groups
- Uploaded on Tuesday
- Submission until Wednesday (the week after) 23:59
- You need to pass N-2 homeworks (probably there will be around 12 homeworks)

Homework Grading

- You have to rate your own homework!
- There are four options
  - Outstanding
  - Done
  - Not Finished
  - Fail

Outstanding

- Your homework is a solution that as a stand-alone helps other students to understand how to solve the homework.
- each group member receives 1 bonus point (more on that below)
- we will double-check homeworks marked as outstanding

Outstanding

This requires not only a running solution, but also a easily understandable and self-explanatory one. The following are necessary conditions:

- Runs without errors.
- Variable names allow for understanding the code directly while reading it.
- Comments are used in a sensible manner to explain lines or blocks. (Too many comments make the code cluttered!)
- Clean and streamlined code (minimizing loops and redundancy, consistency in style).
- Referring to slides/papers for key components.
- Explain if you are using advanced Python Elements (more complex instances (e.g. boolean) of slicing, inline lists, lambda expressions, etc.)

Done

- You solved the homework. It runs and does what it should. You tried to keep your code clean and commented, but didn't put in all the effort necessary for an 'outstanding'.
- This rating will only randomly be double-checked by us.

Not Finished

- You put effort into solving the homework, but you couldn't manage it.
- Here you have to write a short statement in the homework submission form stating the problem you were not able to solve and what you tried to solve it.
- You have two weeks to submit a working version (also in the google form) with short comments in the code on how you fixed the problems.
- We will review your submission and if it works "Not Finished" counts as passing the homework.

Fail

- You did not really work on the homework and did not solve it.
- In this case you do not submit anything.

Homework Submission

- Until Wednesday 23:59
- Using git (github or other git alternative) $\rightarrow$ don't worry if you haven't worked with git before: we can give an intro to that in the session on Thursday
- Submission via this form: `https://forms.gle/H31ckx5251Qg3Ndm6`
- Include link to the homework and the rating
- **Important:** EVERY group member has to fill it out, not just once per group!
- So we can keep track even in case people change groups, quit, ect.
- Form also contains some feedback questions about the courseware content and the homework

Support Structures

- Use the support!
- No need to struggle by yourself with homework or lecture contents
- Use the **coding support** time slots
- Ask questions on **blubber** so that other people with similar problems also benefit from it
- + answer questions on blubber (it will be rewarded)
- Join the **telegram** self-help group: `https://t.me/joinchat/HmSrlEsu5oa3FzbNHPe79Q`

The point system

We want you to not only learn for yourself, but also support your fellow students. Helping each other will be rewarded!
Thus you will get one bonus point for each:

- outstanding homework = homework that helps fellow students to understand the problem at hand
- question of students thoroughly answered in the blubber
- reporting a relevant mistake in our material to us

[1] We will mark blubber comments that receive points with [point granted]

[1] https://memegenerator.net/instance/62214479/professor-mcgonagall-10-points-for-gryffindor

Grading

Exam 50%

- Online
- in the end of the semester, exact date t.b.a. (see survey on studip)

Final Project 50%

+ Additional **bonus points** for outstanding homework and support of other students (up to 20p)

- E.g. 5 outstanding homeworks + 7 answered questions = 12 points
- Exam and project will be graded on a 0-100 points scheme, so we will add the bonus points to the sum of exam and project points

Final Project

- Larger project where you can apply everything you have learnt
- Task: reimplement a paper or build an ANN to solve a task of your choice
- Done in groups of 3 (same group as the homework)
- the project will consist of three parts
  1. Code
  2. Project Report (min 2 pages, explaining the approach and technical details and citing relevant papers)
  3. Short Video Presentation (2-10 min)
- Deadline: end of March
- More info and a list of papers for reimplementation coming soon...

Grading

For those of you who are not comfortable with writing an exam, we offer an **exam alternative**:

- Instead of the exam you can also write a term paper
- In agreement with us you will write about a specific topic, work with multiple papers, ect.
- Length: around 10-12 pages
- **Important:** We explicitly recommend to not write the paper and take the exam instead. This will also be less work for you. However, we still want to have this as an option for some who struggle with exam situations.
- Contact us until 20th January if you want to write the term paper so we can arrange a topic with you.

Course Overview

Week 1	Intro to Neural Networks
Week 2	Training NN: Gradient Descent, Backpropagation
Week 3	Tensorflow Introduction
Week 4	Training NN: Advanced Topics
Week 5	Architectures I: CNNs
Week 6	Architectures II: Advanced CNNs
Week 7	Architectures III: Autoencoders and embeddings
Week 8	Architectures IV: GANs
Week 9	Architectures V: RNNs
Week 10	Architectures VI: Attention
Week 11	Advanced topics in implementation
Week 12	Applications I: Natural Language Processing
Week 13	Applications II: Deep Reinforcement Learning

Any questions left?

If in doubt, contact your tutors Charlie, Annie, Nion and Leon. Do not contact Prof. Franke - he is only bearing the formal responsibility for this course. We are here for all the rest:

chalange@uos.de awitschas@uos.de nschuermeyer@uos.de lschmid@uos.de