

# Exposé

## Survey on Continual Learning

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### Idea

The idea of this thesis is to give a good overview of the machine learning (ML) field continual learning (CL) but through the lens of a statistician. This is to be achieved by gathering various papers on the topic and breaking down their statistical foundations. These should cover a broad spectrum of the possibilities in CL e.g. the different methodologies or criteria.

Since I enjoy coding and fiddling around with practical models more than their theory I could imagine training a linear continual learner with different regularization methods or something in the likes of for the last part of the thesis. But I am a little skeptical whether this is feasible or not. Over the last year I have also developed an interest in fraud analysis, but haven't had the time to really dive into this field. I am also thinking about taking this as an opportunity to educate myself and connect the two topics. But have no time. Alternatively, Dr. Rodemann suggested to deeper analyze a singular paper.

Mögliche Gliederung:

1. Differences between ML and Statistical Modeling
2. The challenges of continual learning
  - 2.1 Distribution Shift
  - 2.2 Catastrophic Forgetting
3. Defining a continual learner

gewünschter Abgabetermin:

## **Progress of my Studies**

Now about the current state of my studies. I started this degree in 2017 with a minor in Insurance and Risk Management. After the first year I changed my minor to computer science. I am still dealing with a couple of mental issues, hence the long duration, but I am determined to finish my degree. This semester I intend to take my last two exams in GRM and I2ML. Both courses I have previously heard and solved most exercise sheets but never taken the final exam.

In my third semester I have taken the WP course "Stichprobentheorie" and in my eighth "Einführung in die Biometrie". I2ML is my last WP course that I have to pass.

The BA Seminar was together with Dr. André Klima and Dr. Georg Schollmeyer in 2020. Latter supervised my project, Visualisierung von Verteilungsunsicherheiten.

## **Familiarization**