

MA Project: Interactive Machine Learning

Mobile data collecting applications today only inform users about what data is collected directly, but not about what can be inferred from it. However, awareness of potential inferences is important from a data privacy perspective, especially as inferred information has been shown to be applicable for unethical applications as well. For example, psychometric targeting and mass manipulation through targeted content are a major threat of modern societies.

A thesis in this project should investigate on the concept of interactive machine learning. Data that is collected about a user, be it mobile sensing or other technology usage data, should be provided to the user themselves. Given this data, users should be enabled to train machine learning predictions themselves interactively¹. Appropriate technologies could be, but are not limited to:

- A mobile application that in a quantified-self approach allows users to predict some chosen target variable
- A mobile game, that conveys the potential of machine learning in a playful manner.

Research aims could be, but are not limited to:

- Educating end-users on the capabilities, functioning, limitations, and risks of machine learning with user-centered data
- Make users aware of and more resistant against psychometric targeting
- Improve the user-privacy of data using applications, by making the predictions that happen in the background transparent

A thesis consists of...

- A comprehensive literature research in your domain of research. Your concept and design decisions have to be based on related work where possible. You have to work out a research gap that your project fits into, to avoid reinventing the wheel.
- Coming up with an approach on how you plan to tackle your research question, including steps and timeplan
- Conduct a UX design process in order to create a UI concept for your application
- Implementation of your concept (if appropriate, a prototype or mockup might be sufficient)
- Evaluation in a user study
- Writing up your project in a thesis document
- Present your project in the disputation seminar

Due to the large scope of this projects and its advanced methodologies, I'd recommend this as a master thesis only. However if you can argue why you're experience and skills are sufficient to do it as a Bachelor's thesis, feel free to contact me as well. You are a good fit for this topic if you...

- Are familiar with UX + UI design, and are able to create user-centered applications
- Programming skills in order to realize your concept (likely some UI framework like Android or React, and some mobile machine learning technologies like TensorFlow)
- Have a creative and proactive mindset to come up with ideas and approaches to tackle problems
- Are in your 3rd or higher semester of your Masters in media informatics, or a related field
- You are the project leader of your thesis. This requires an active working style and self-management, including making decisions to stay on track towards meeting your thesis' goal.

If you are interested, please drop me a message including some information why you feel you are a good fit for this topic and a transcript of records to florian.bemmann@ifi.lmu.de !

¹ <https://www.medien.ifi.lmu.de/forschung/publikationen/detail?pub=bemmann2021hcxai>