Synthesizing human gaze data for inference tasks from eye movements

Abstract:

Eye movements in reading are known to reflect cognitive processes involved in reading comprehension at all linguistic levels, from the sub-lexical to the discourse level. This means that reading comprehension, as well as other properties of the text and/or the reader, can be inferred from eye movements. In this talk, we will discuss different machine learning-based architectures for inferring e.g.c ognitive abilites of the reader.
Eye-tracking data is often limited in quantity due to the labor-intensive process required to collect it and the expensive hardware needed to record eye movements. This scarcity of data can be a major challenge when training machine learning models that rely on eye-tracking data. To tackle this problem, we can first try to decrease the cost of eye-tracking hardware and make data collection less reliant on human instructors. Secondly, we can try to overcome data scarcity by generating synthetic data.
Therefore, in addition to the aforementioned reader inference tasks from eye movements, we will also discuss approaches to synthesize eye-tracking data with neural sequence models.