MATHEMATISCH-
NATURWISSENSCHAFTLICHE FAKULTÄT
Wilhelm-Schickard-Institut – Technische Informatik

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UNIVERSITÄT
TÜBINGEN

Diplom-/Master-/Bachelorarbeit

Automated Scanpath Comparison

Description:

In order to find differences in how people look at things, eye-tracking recordings are simplified to their basic elements, i.e. fixations and saccades (fast eye movements). The temporal order of fixations and saccades defines visual scanpaths. The analysis of differences in viewing behavior between subjects can be reduced to the comparison of the underlying visual scanpaths. However, existing scanpath comparison algorithms are mostly based on the same principle: the scanpaths are converted to string sequences which are compared using string-alignment algorithms. As this approach shows severe limitations, the manual analysis is still very common, even though time-consuming and error-prone.
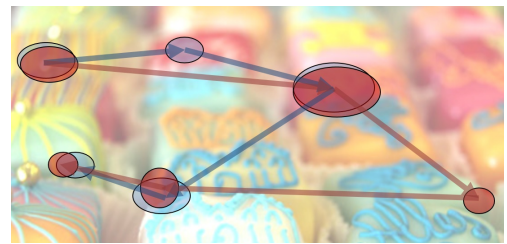
Task:

Aim of this thesis is the improvement of existing scanpath alignment techniques by identifying new distance metrics. Furthermore, the identification of repeated short movement patterns, e.g. glances in the rear-view mirror while driving, might help to improve the scanpath alignment. Additionally, extension of the use cases for analysis of time-variant tasks and associated time-dependent synchronisation might significantly improve existing algorithms.

Requirements:

Interest in string alignment algorithms, eye-tracking technique and programming skills are of advantage.

Supervisors:

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