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BSc Thesis
Topic: Implementing an Index for Videos Containing Human Motion in a Multi-media Retrieval System

Currently, many information retrieval systems utilize a textual interface to elicit the information needs of a user. While this works perfectly well for searching and analyzing text-based collections, there are application domains in which textualizing a query or content is much harder. One of these domains is human motion. Describing a large number of different human poses with words is very difficult.

In a previous MSc thesis ("Indexing Videos Containing Human Motion in the Form of Dance"), Nicoletta Farabullini, an MSc student, developed similarity measures for multidimensional timeseries data generated out of videos containing human motion.

The goal of this BSc thesis is to pick up where Nicoletta left off: to implement these techniques in a multi-media retrieval system and to test the implementation with real-world datasets.

Tasks

1. Get acquainted with timeseries data processing and multi-media retrieval systems in general and the techniques described in the MSc thesis by Nicoletta in particular.
2. Implement and integrate the index into a (multimedia) retrieval system. The idea is to employ the Vitrivr system, which uses Cottontail DB as a backend server.
3. Evaluate the performance of the system using real-world datasets. Depending on the quality and the diversity of the available datasets, it may make sense to generate specific datasets for certain motions. Depending on the insights gained from the experimental evaluation, this may open up new avenues of optimizing the techniques described by Nicoletta.

4. Optional: develop a visual interface for querying the video collection. This would be done in collaboration with the VMML research group, which can provide guidance in visualizing video data.
5. Write the thesis.

Supervisor: Sven Helmer (helmer@ifi.uzh.ch)

Start date: 15 November 2022
End date: 14 April 2023

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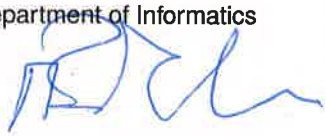

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