Master Thesis: Image Analysis of Structured Visual Content using Deep Learning

The accumulation of knowledge is key for any discipline. With the number of publications, theoretical constructs, and empirical findings growing, surging demand for structuring and meta-analysis is foreseeable. For this purpose, we have DISKNET, an online platform that enables the extraction, exploration, and aggregation of construct's definitions, semantic relations, and analytical relations. While these aspects exhibit a rather standardized structure in theory, their practical documentation is non-uniform, highly dispersed, and tricky to seize technically. This has impeded the efficiency and effectiveness of review and meta-analytical processes, and resulted in a fragmented theoretical superstructure. We suggest that tool support for systematic knowledge accumulation is a central step to counteract these issues and to build to a consistent body of knowledge. The current prototype of DISKNET has demonstrated relevant design principles for a platform for systematic accumulation of knowledge.

Goals

In this thesis, we aim to use deep learning-based methods to facilitate the automatic analysis of graph data structures and extraction of the semantic associations from the knowledge platform DISKNet. Therefore, deeply learning-based methods for automated extraction of information from large-scale databases will be implemented and investigated. Thus, this work offers an exciting opportunity to learn and research document segmentation, graph neural networks and many other computer vision tasks.

Requirements

Python/C++ programming skills and knowledge of PyTorch/Tensorflow are desirable.

Contact

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