Opportunities for Multimedia Analysis in Scholarly Digital Libraries

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Abstract

Today's scientific literature contains a multitude of multimedia data. While we struggle as a community to define the next generation of scholarly dissemination, we should also capitalize on the opportunities to mine our scholarly literature. Aside from text, documents embed figures representing examples, charts of experimental results, diagrams illustrating workflows, often accompanied by their explanatory captions. Scholars use key phrases, argumentative flow and section headers as discourse markers to indicate important results. By machine reading of these documents, we can enable semi-automated scientific discovery, including the generation of augmented and linked slide presentations, survey papers, collection of scientific terms and their definitions. We will present the current state of these works, describing work done at NUS while touching on other international groups' initiatives. In many fora, the scientific record is also accompanied by more informal presentations such as keynotes and conference talks. With the growing proportion of these talks being recorded and opened to the public, we have a chance to link the textual data within scientific documents to their oral presentations. We touch on the recent work in all of these areas and point forward to the upcoming synergies between ASR, NLP and multimedia analysis that will augment and define the next generation of digital libraries. We will present the Association of Computational Linguistics' current thinking towards enabling this process workflow. We have designed a digital library that allows third parties to request, ingest and process the official scientific publications of the ACL Anthology, and allow them to publish their results in a designated part of the website.

Speaker Biography

Min-Yen Kan (BS;MS;PhD Columbia Univ.; SACM, IEEE) is an associate professor at the National University of Singapore. He serves the School as an Assistant Dean of Undergraduate Studies. Min is a member of the executive committee of the Association of Computational Linguistics (ACL) and also helps to maintain the ACL's Anthology, the community's largest archive of published research. He is also an associate editor for the Springer "Information Retrieval" journal. His research interests include digital libraries and applied natural language processing. Specific projects include work in the areas of scientific discourse analysis, full-text literature mining, machine translation and applied text summarization.