

Natural Language Processing in support of Learning: Metrics, Feedback, and Connectivity

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In AIED research, providing feedback for learning entails measuring differences among learners; between learners and their desired characteristics (e.g., knowledge, competences, motivation, self-regulation processes); or between learners and their looked-for resources (e.g., web-links, articles, courses) has often been performed by computing and analysing ‘distances’ using several techniques like factorial analysis, instance-based learning, clustering, and so on. Corpora on which these measures are made are all writing-based, that is, are multiple forms of pieces of evidence such as texts read (written by teachers), spoken utterances, essays, summaries, forum or chat messages. Some of these metrics are based on shallow syntactical and morphological aspects of the interaction and production artefacts (e.g., text length). Others are focused more on semantic and pragmatic aspects. These measures are used for providing various kinds of feedback for supporting learning and connections between learners. For instance, relations between learners’ utterances, knowledge, concept acquisition, emotional states, essay scores, and even learners themselves have all been investigated with the help of computing semantic distances.

The purpose of this workshop is to focus on the latter two – semantics and pragmatics – by trying to identify what questions and problems are solved, but also to raise and discuss how well the metrics developed assist in the provision of support and the construction of feedback for learning. What are the most efficient ones? To what extent do they match distances inferred by teachers’ assessments?

Presentations on topics like the following ones will fuel the research on NLP in support of learning: automated essay scoring and grading, summarization and writing assistance, methodological issues of distance-based semantic processing techniques, cognitive modelling using distance-based semantic processing techniques, analysis, assessment, and feedback generation of content and inter-animation in CSCL through chats or forums.