Invited talk:
AutoTutor: Learning while Holding a Conversation with a Computer

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Abstract

AutoTutor is a learning environment on the Internet that helps students learn by holding a conversation in natural language. The system integrates computational mechanisms that were inspired by the fields of discourse processing, cognitive science, computational linguistics, and the learning sciences. More specifically, AutoTutor's design was inspired by explanation-based constructivist theories of learning, intelligent tutoring systems that adaptively respond to student knowledge, and research on dialogue patterns in tutorial discourse. AutoTutor presents challenging questions on topics such as Newtonian qualitative physics or introductory computer literacy and then engages in mixed initiative dialogue that coaches the student in building an answer. It provides feedback to the student on what the student types in (positive, neutral, negative feedback), pumps the student for more information, prompts the student to fill in missing words, gives hints, fills in missing information with assertions, identifies and corrects erroneous ideas, answers the student's questions, and summarizes answers. The recent versions of AutoTutor attempt to adapt to learners' emotions and to guide the learner through discourse in interacting with 3D simulations.