

# The evolution of virtual tutors, clinician, and companions: A 20-year perspective on conversational agents in real-world applications

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## **ABSTRACT**

The talk will present an overview of research projects initiated in 1997 and continue today in 2017, in which 3-D computer characters interact with children and adults with the aim of improving their language communication skills, educational achievement, and/or personal well-being. The talk examines how advances in human language and character animation technologies, and research leading to a deeper understanding of how to apply these technologies to optimize engagement and learning, led to positive experiences and learning outcomes similar to experienced teachers and clinicians, individuals from 5 to 80 years of age. The talk concludes with a consideration of how recent advances in machine learning algorithms, coupled with cloud-based delivery of automated assessment and instruction, delivered by virtual agents, can save teachers millions of hours of time annually, and provide EDM researchers with vast amounts of speech and language data that can be mined to improve students' learning experiences and outcomes.