

Invited Talks

Learning to Make Music: Interactive AI for Music Creation

Sumit Basu (Microsoft Research)

For those who can play an instrument or have a respectable singing voice, music can be a wonderful means of creative expression, social engagement, and fun. For many others, though, it can be frustrating and inaccessible: even if an inspired youth has great musical ideas, she may not have the knowledge or ability to get her latest song out from her head and into her MP3 player. In this talk, Basu will show three vignettes of how he and his colleagues have used interactive machine learning to extend the creative reach of aspiring musicians: a system that adds a learned notion of style to dull MIDI sequences, a system for interactively creating accompanying chord sequences from a melody input, and a method for helping singers produce the notes they meant to sing. Finally, making music more accessible also makes it more fun, for both novices and experts. Basu will end his talk with some thoughts on how these technologies might lead to interesting gaming experiences.

Sumit Basu has been a researcher at Microsoft Research since completing his PhD at the Massachusetts Institute of Technology in 2002. His primary focus area is interactive machine learning, within which he investigates how human judgments, knowledge, and intent can best be leveraged to train or guide complex learning algorithms, as well as how algorithmic approaches can be used to teach humans new information. He has worked in a variety of application areas for this technology, including music creation and analysis, data mining and organization, diagnosing computer systems, and speech/conversational analysis. More information including publications, projects, videos, and released software is available from Basu's website (research.microsoft.com/~sumitb).

Invited Talk

Chris Journey (Lead Programmer, Double Fine Productions)

Chris Journey is a rock and roll experimental game programmer at Double Fine Productions, with 11 years experience in games and simulation. He has shipped 4 titles in the games industry: *Company of Heroes*, *Frontline: Fuel of War*, *Dawn of War 2*, and *Brutal Legend*. Journey frequently speaks on the topic of game AI, having presented at the Game Developers Conference (GDC), GDC China, Columbia University, the University of Pennsylvania, and the New Jersey and Philadelphia chapters of the International Game Developers Association (IGDA). He has also written two articles published in *AI Game Programming Wisdom 4* and wears tin foil weaved into his hair to block the voices.

A Perspective on the Use of Digital Media and AI in Serious Games and Training

Bob Sottolare (U.S. Army Simulation & Training Technology Center)

This talk will provide a perspective on the role of artificial intelligence (AI) and interactive digital media in serious games and training applications for the military. The perspective will focus primarily on nonkinetic training (for example, bilateral negotiation, medical training and exercising decision making in ill-defined environments). The importance of intelligent agents in enhancing military training, leader development and education (TLE) and in reducing associated support costs will be discussed along with the use of intelligent agents to supplement individual and collective training experiences where human support is limited, impractical or completely unavailable. Challenges in the de-

velopment of adaptive, interactive media for training will also be discussed.

Bob Sottolare is the chief technology officer at the U.S. Army Simulation and Training Technology Center (STTC) in Orlando, Florida. His recent publications have appeared in the *Journal for Defense Modeling and Simulation*, the NATO workshop on Human Dimensions in Embedded Virtual Simulation and the Intelligent Tutoring Systems Conference. He has a doctorate in modeling and simulation from the University of Central Florida and the focus of his current research program is in machine learning, trainee modeling and the application of artificial intelligence tools and methods to adaptable training environments for *Warfighters*.

Cracks in the Fourth Wall: Digging into a Humanistic Phenomenon Using Computational Models

R. Michael Young (North Carolina State University)

Research on computational approaches to narrative push the boundaries on a diverse set of techniques, ranging from planning to constraint solving to machine learning and more. At the core of the area, though, lies narrative itself. Narrative holds a position of privilege in our minds, being a fundamental mode of understanding the worlds around us. In

this talk, Young will describe a trajectory of projects from his research group and the role that the nature of narrative and its comprehension by people has played in setting their goals and the methods they use to achieve them.

R. Michael Young is an associate professor of computer science at North Carolina State University, where he leads the Liquid Narrative Research Group. His work focuses on the computational modeling of interactive narrative. Young received an NSF CAREER Award in 2000 and has received university-level awards for outstanding teaching and outstanding activities in engagement/economic development. He was a cofounder of AIIDE and served as its first conference chair. Young was editor-in-chief of the *Journal of Game Development* from 2007 to 2008. He serves as an associate editor of the IEEE journal *Transaction on Computational Intelligence and AI in Games*.