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Computing the Arts & Humanities Lecture Series

Computational Music Understanding and Performance

Roger B. Dannenberg, Carnegie Mellon University

Associate Research Professor

Johnston Hall 338
October 07, 2008 - 02:15 pm

Abstract:
My work involves getting computers to perform with human musicians. A big challenge is getting machines to understand music enough to enable true interaction and communication rather than just playing along with a prerecorded sound track. I will describe and demonstrate computer systems that listen to music and detect pattern and structure, enabling high-level musical interaction. I will also describe plans for a new generation of interactive music systems under development, including the need for highly parallel real-time signal processing, which hopefully will be enabled by new generations multi- and many-core computers.

Speaker's Bio:
Dr. Roger B. Dannenberg is an Associate Research Professor in the Schools of Computer Science and Art at Carnegie Mellon University, where he is also a fellow of the Studio for Creative Inquiry. His pioneering work in computer accompaniment led to three patents and the SmartMusic system now used by tens of thousands of music students. He also played a central role in the development of the Piano Tutor, an intelligent, interactive, automated multimedia tutor that enables a student to obtain first-year piano proficiency in less than 20 hours. Dannenberg held a patent for large-scale interactive games controlled by crowd noise, and these stadium games have entertained many NFL fans. Other innovations include the application of machine learning to music style classification and the automation of music structure analysis. As a trumpet player, he has performed in concert halls ranging from the historic Apollo Theater in Harlem to the Espace de Projection at IRCAM, and he is active in performing jazz, classical, and new works, including his own compositions.

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