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THE DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE, CS DIVISION

Presents the Spring 2012 EECS Seminar Series

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"Tunebot and iQ: Music Software that Listens"
Wednesday, January 11, 2012 • 11:00 a.m. • HEC 101

ABSTRACT

Assoc. Prof. Bryan Pardo combines advances in artificial intelligence, signal processing and user interface design to build tools that empower both music creators and music listeners. In this talk, he will describe on two such tools developed in his laboratory: the Tunebot music search engine and the iQ intelligent equalizer.

Tunebot: Systems able to find a song based on a sung, hummed, or whistled melody are called Query-By-Humming (QBH) systems. Tunebot is an online QBH web service that connects users to desired recordings on Amazon.com. Tunebot's searchable database is composed of thousands of user-contributed melodies and its melodic similarity measure is learned from user interaction and singing styles.

iQ: Complex interfaces for audio processing tools (e.g. equalizers) can prevent novices from achieving their desired sound modifications. We adapt a correlational method used widely in psychoacoustics to quickly map from high-level language-based descriptors (such as''warm'') to audio processing parameters. This allows automated construction of simpler interfaces for audio processing tools. The result of this is iQ, an intelligent equalizer plug-in that helps each user discover the equalization settings that sound best to them.

BIOGRAPHY

Bryan Pardo received an M. Mus. degree in jazz studies in 2001 and a Ph.D. degree in computer science in 2005, both from the University of Michigan, Ann Arbor. He is an associate professor in the Department of Electrical Engineering and Computer Science at Northwestern University, Evanston, IL. He has developed speech analysis software for the Speech and Hearing Department of Ohio State University, statistical software for SPSS, and worked as a machine learning researcher for General Dynamics. While finishing his doctorate he taught in the Music Department of Madonna University.

Dr. Pardo has authored over 60 peer-reviewed publications and he is an associate editor for IEEE Transactions on Audio Speech and Language Processing. When he is not programming, writing or teaching, he performs throughout the United States on saxophone and clarinet at venues such as Albion College, Chicago Cultural Center, Detroit Concert of Colors, Bloomington Indiana's Lotus Festival, and Tucson's Rialto Theatre.

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