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Composing Music From Complex Networks

Mr Xiaofan Liu

Hong Kong Polytechnic University

Date and Time: Friday, 13 February 2009, 4:30pm – 5:30pm

Venue: Room CD634, Hong Kong Polytechnic University

Reception starts at 4:15pm

(Language: **English**)

Abstract

In this talk we present the network structure in music and attempt to compose music artificially. Networks are constructed with nodes and edges corresponding to musical notes and their co-occurrences. We analyze sample compositions from Bach, Mozart, Chopin, as well as other types of music including Chinese pop music. We observe remarkably similar properties in all networks constructed from the selected compositions. Power-law exponents of degree distributions, mean degrees, mean geodesic distances, etc. are reported. With the network constructed, music can be created by using a biased random walk algorithm, which begins with a randomly chosen note and selects the subsequent notes according to a simple set of rules that compares the weights of the edges, weights of the nodes, and/or the degrees of nodes. The newly created music from complex networks will be played in the presentation. Some future plans will be discussed.

About the Speaker

Xiaofan Liu received his BSc (Hons) degree in Internet and Multimedia Technologies from the Department of Electronic and Information Engineering of The Hong Kong Polytechnic University, in 2008. He is now working toward his MPhil degree with Prof. Michael Tse on the modeling, characterization and composition of music with complex networks.