

Title: Laws of Information Theory: Entropy and Information Inequalities

Speaker: Qi Chen

Time & Location: Thursday, January 14, 2016 2:00 p.m. ECE 202

Abstract:

Constraints on the (joint) entropies for a given set of random variables, mostly in the form of information inequalities, are considered as the laws of information theory not only because converse theorems of coding theorems are proved by information inequalities, but also they bound the capacities or capacity regions of many information theory problems, such as network coding, data storage, secret sharing, etc. Furthermore, they are also related to other subjects of mathematics and physics such as group theory, matroid theory, combinatorics, Kolmogorov complexity and quantum mechanics.

Proving information inequalities is equivalent to the characterization of entropy function regions. In this talk, we will give a brief introduction to the history of characterization of entropy function regions, its applications, relations to other subjects and recent progresses.

Speaker's Biography:

Qi Chen is currently a Postdoctoral Fellow both at the Institute of Network Coding, The Chinese University of Hong Kong and ECE Department, Drexel University. In 2014, he received his PhD degree in Information Engineering at The Chinese University of Hong Kong under the supervision of Prof. Raymond W. Yeung. He received his Master's degree and Bachelor's degree at Shanghai Jiao Tong University in 2010 and Nanjing University of Posts & Telecommunications in 2007, respectively. His research interests include information theory and its related subjects.