



香港中文大學
The Chinese University of Hong Kong

Institute of Theoretical Computer Science and Communications
ITCSC Seminar

27 September 2024, Friday

10:30 am – 11:30 am

SHB801, CUHK

Information-theoretical iterative optimization algorithm

By

Prof. Masahito Hayashi

Presidential Chair Professor, CUHK-Shenzhen

Abstract: Iterative minimization algorithms appear in various areas including machine learning, neural networks, and information theory. The em algorithm is one of the famous iterative minimization algorithms in the area of machine learning, and the Arimoto–Blahut algorithm is a typical iterative algorithm in the area of information theory.

However, these two topics had been separately studied for a long time. In this paper, we generalize an algorithm that was recently proposed in the context of the Arimoto–Blahut algorithm. Then, we show various convergence theorems, one of which covers the case when each iterative step is done approximately.

Also, we apply this algorithm to the target problem of the em algorithm, and propose its improvement. In addition, we apply it to the problem proposed by X. Hu, F. Farnia, and H. Leung.

***** ALL ARE WELCOME *****