THE CHINESE UNIVERSITY OF HONG KONG
DEPARTMENT OF ELECTRONIC ENGINEERING
SEMINAR

Model-Based Learning for Point Pattern data

by

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Abstract

Stemming from research on handwritten digit recognition in 1990, multiple instance (MI) learning has emerged as an important topic in Machine Learning. Unlike conventional Machine Learning problems where each datum is a vector, in MI learning each datum is a set or multi-set of unordered points. Despite a host of techniques and applications as well as the fundamental role of statistical models, point pattern learning based on statistical models have not yet been investigated. This presentation discusses a framework for model-based point pattern learning using point process theory, which enables principled yet conceptually transparent extensions of learning tasks, such as classification, novelty detection and clustering. Furthermore, tractable point process models as well as solutions for point pattern learning are developed.

Biography

Ba-Ngu Vo received his Bachelor degrees in Pure Mathematics and Electrical Engineering with first class honours in 1994, and PhD in 1997. Currently he is Professor and Chair of Signals and Systems in the Department of Electrical and Computer Engineering at Curtin University. Vo is a recipient of the Australian Research Council's inaugural Future Fellowship and the 2010 Eureka Prize for Outstanding Science in support of Defense or National Security. He is an associate editor of the IEEE Transaction on Aerospace and Electronic System. Vo is best known as a pioneer in the stochastic geometric approach to multi-object system. His research interests are signal processing, systems theory and stochastic geometry with emphasis on target tracking, space situational awareness, robotics and computer vision.

***** ALL are welcome *****
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