

## ICTS Workshop: Architecture of Deep Neural Networks

8-12 January, 2018, Hong Kong Baptist University

Aims and Objectives: Review latest developments on the decomposition and design of deep neural nets for specific applications, including quantum many-body wave functions, efficient optimization and sampling schemes, and analysis of natural languages and biological data.

### Schedule (Open to Public)

**Monday Special Seminar (AAB 504)**

**8 Jan** 11:00 – 12:00 AlphaGo: Inside Out (**Jooyoung Lee**)

**Wed Shallow and Deep Learning: Basic Concepts and Practices (AAB 505)**

**10 Jan** 9:30 – 10:30 Machine-Learning Basics: Tasks, Decision Boundaries and Representations, Dimension Reduction, Multi-layer Networks, etc. (**Tang Qianyuan**)

11:00 – 12:00 Deep Neural Networks: Some Successful Architectures (CNN, RNN, Open vs Closed Systems, etc.) (**Zeng Chen**)

14:30 – 15:30 Magic of Hidden Layers/Variables: Deep Belief Net, RBM, etc. (**Zhang Pan**)

16:00 – 17:00 GAN and Self-Learning (**Tang Qianyuan/Zeng Chen**)

**Friday Mini Symposium on Machine Learning and Applications (AAB 504)**

**12 Jan** 9:00 – 17:30

# ICTS Mini Symposium on Machine Learning and Applications

Friday, 12 January, 2018

Venue: **AAB 504**, BURC, Hong Kong Baptist University

## Program

- 9:00 – 9:10      Opening by Prof. Jiming Liu, Associate Vice President (Research)
- 9:10 – 9:50      Lei Wang (IOP/CAS): From Boltzmann Machines to Born Machines  
9:50 – 10:30    Haijun Zhou (ITP/CAS): Compressed Sensing by the SSD Algorithm
- 10:30 – 10:50    Tea Break
- 10:50 – 11:30    Zhanxing Zhu (PKU): Regularization Techniques in Deep Learning  
11:30 – 12:10    Lixing Zhu (HKBU): Order Determination for Large Dimensional Matrices
- 12:10 – 14:30    Lunch Break
- 14:30 – 15:10    Chao Tang (PKU): Reverse Engineer Spatial Patterns in Biology  
15:10 – 15:50    Xiongfei Fu (SIAT): Spatial Order Resolves Conflicts between Individuality and Collective Migration
- 15:50 – 16:10    Tea Break
- 16:10 – 16:50    Zhili Wu (Yi-Yuan Intelligent Co., Shenzhen): Deep Learning for Medical Imaging Analysis  
16:50 – 17:30    Bo Li (HKUST): Error and Entropy in the Function Space of Multi-layer Networks