Department of Computer Science

COMPUTER SCIENCE COLLOQUIUM

Signal Recovery through Noise/Loss Modeling

SPEAKER **Dr Deyu MENG**

Associate Professor
Institute for Information and System Sciences
School of Mathematics and Statistics
Xi'an Jiaotong University
China

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TIME 2:30 pm - 3:30 pm

VENUE CS Seminar Room, Y6405
6th Floor, Yellow Zone
Yeung Kin Man Academic Building
City University of Hong Kong
83 Tat Chee Avenue
Kowloon Tong

ABSTRACT

The loss function used in a conventional machine learning problem is generally specified as an easy fixed form, like L2 norm or L1 norm, which intrinsically assumes the noises contained in data are generated from a simple distribution, like an i.i.d. Gaussian or Laplacian. However, in practical scenarios with complex noise configurations, such modeling inclines to encounter the robustness issue, that is, such modeling manner tends to make the related learning algorithm sensitive to complex noises. In this talk, I will introduce some developments of our research team on noise/loss modeling, which aims to make a machine learning model capable of adaptively learning an appropriate loss function/noise distribution from data, so as to alleviate the robustness issue of generally machine learning regimes. Such loss/noise modeling paradigms have been used on multiple image/video/hyper-spectral image restoration tasks, and achieved state-of-the-art performance on hyper-spectral image denoising, online background subtraction on surveillance videos, low-dose CT image enhancement and video deraining. Such a fundamental regime is expected to inspire useful learning algorithms for more machine learning tasks.

BIOGRAPHY

Deyu Meng received the B.Sc., M.Sc., and Ph.D. degrees in 2001, 2004, and 2008 respectively, from Xi'an Jiaotong University, Xi'an, China. He is currently an Associate Professor with the Institute for Information and System Sciences, School of Mathematics and Statistics, Xi'an Jiaotong University. From 2012 to 2014, he took his two-year sabbatical leave in Carnegie Mellon University. He has published more than 80 peer-reviewed papers on international journals like TPAMI, TIP, TKDE, TNNLS, TSMCB and top conferences like CVPR, ICCV, ECCV, AAAI, IJCAI，ICML, NIPS, ACM MM. He has served as PC members of multiple top conferences, like CVPR, ICCV, ECCV, AAAI, IJCAI，ICML, NIPS, ACM MM, and senior PC member of AAAI 2016, IJCAI 2017, IJCAI 2018. His current research interests include self-paced learning, noise/loss modeling, and tensor sparsity.

All are welcome!

In case of questions, please contact Prof ZHANG Qingfu at Tel: 3442 8632, E-mail: qingfu.zhang@cityu.edu.hk, or visit the CS Departmental Seminar Web at http://www.cs.cityu.edu.hk/news/seminars/seminars.html.