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# IEEE BDA Tutorial Series: Big Data & Analytics for Power Systems

## A Learning-to-Infer Method for Real-Time Power System Monitoring

Prof. Yue Zhao
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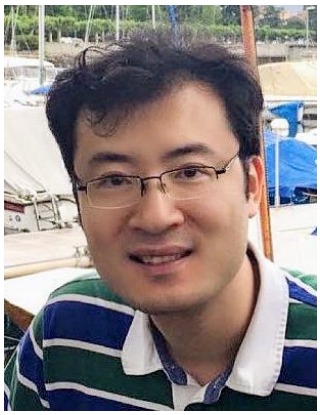

12:00 pm-1:15 pm, PST, Thursday, Mar. 26, 2020
(12:00 pm - 1:15 pm, MST) (2:00 pm – 3:15 pm, CST) (3:00 pm - 4:15 pm, EST)

**Abstract:** Real-time power system monitoring is at heart an inference problem. In contrast to physical model based inference methods, we present a “Learning-to-Infer" framework where a) Information from the physical model is captured by the data generated with it, and b) powerful predictors are trained offline for accurate online inference. We present case studies on two fundamentally hard problems in power system monitoring, multi-line outage identification and voltage stability margin estimation, to illustrate the power of the Learning-to-Infer method. The achievement of two key properties by the method will be discussed: a) generalizability: the predictors achieve high performance on instances, not only unseen in, but also not similar to the training set, and b) scalability: with a moderate increase of the offline generated training data, the predictors achieve sustained high performance in larger systems.

**Bio:** Yue Zhao is an Assistant Professor of Electrical and Computer Engineering at Stony Brook University. He received the B.E. degree in Electronic Engineering from Tsinghua University, Beijing, China in 2006, and the M.S. and Ph.D. degrees in Electrical Engineering from the University of California, Los Angeles (UCLA), Los Angeles in 2007 and 2011, respectively. His current research interests are in the areas of machine learning and mechanism design with applications in power systems and renewable energy integration.

**Link**: https://asu.zoom.us/j/5513218843