

THE DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING SPEAKER SERIES

PRESENTS

Advanced Prediction Techniques Applied to Smart Grids



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LECTURE ABSTRACT

The power system industry is shifting towards a new digitalization era to better manage risk within volatile energy commodities, increase customer engagement, and enhance efficiency via grid optimization. Data analytics play a vital role in this transformation and, as such, different measurement architectures have been used and implemented to facilitate data capturing process and supervisory control at the generation, transmission, and distribution levels. This seminar will briefly review the recent outcomes of some smart grid challenges addressed by novel prediction techniques. At the generation level, decomposition techniques have been applied to handle the inherent uncertainty in short-term wind power prediction. At the transmission level, dynamic thermal line rating prediction has been studied as a viable solution to reduce congestion and utilize the actual capacity of the line. Considering the high inclusion of phasor measurement units at the transmission level, cutting-edge methods have been proposed to address stability status prediction of the grid following a contingency. Finally, at the distribution level, real-life data obtained from advanced metering infrastructure have been used for load prediction and customer segmentation.

SPEAKER BIOSKETCH

Prof. C.Y. Chung is a Professor, the NSERC/SaskPower Senior Industrial Research Chair in Smart Grid Technologies, and the SaskPower Chair in Power Systems Engineering in the Department of Electrical and Computer Engineering at the University of Saskatchewan, Canada. He is a prominent leader for advancing academic activities and applied research in power systems engineering development in the province of Saskatchewan. He is now leading a research team, supported by SaskPower and NSERC of Canada, to conduct cutting-edge and long-term smart grid research for SaskPower and address critical technical issues associated with smart grid technologies and their applications to real power systems.

Prof. Chung is currently a Senior Editor of "IEEE Transactions on Power Systems", a Vice Editor-in-Chief of "Journal of Modern Power Systems and Clean Energy" and a Subject Editor of "IET Generation, Transmission & Distribution". He is an IEEE PES Distinguished Lecturer and a member of IEEE PES Fellow Evaluation Committee. He is also the recipient of the 2021 IEEE Canada P. Ziogas Electric Power Award and a Fellow of IEEE, EIC, IET and HKIE.

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