



Talk information

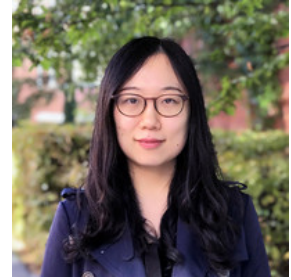
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Title of the talk:

Data-driven modelling and coordination of sustainable power systems with smart converters

Abstract:

Moving towards climate neutral society, future power grids will have a high share of renewable energy. As power converters serve as the interface of renewable energy sources into the grid, future power systems are power converter-dominated grids. However, grid transition brings new challenges. First, the grid has high volatility and uncertainty. Second, there are stability issues due to the interactions of grid connected converters. Moreover, with large-scale integration of power converters, to achieve optimal coordination under renewable fluctuations requires a high communication and computation burden. To address these challenges, this talk will present novel data-driven modelling and coordination strategies for sustainable power systems with smart converters using deep learning and deep reinforcement learning.

Bio:

Dr. Qianwen Xu is an Assistant Professor in the Department of Electric Power and Energy Systems, KTH Royal Institute of Technology, Sweden. Previously, she received a B.Sc. degree from Tianjin University, China, in 2014, and PhD degree from Nanyang Technological University, Singapore, in 2018, both in electrical engineering. Then she worked as a postdoc research fellow in Aalborg University in Denmark, a visiting researcher with Imperial College London, and a Wallenberg-NTU Presidential Postdoc Fellow in Nanyang Technological University in Singapore in 2018-2020. Her research interests include advanced control, optimization and artificial intelligence application of sustainable power systems, microgrids and power converter systems. She is the recipient of Humboldt Research Fellowship, Excellent Doctorate Research Work, Best paper award in IEEE PEDG 2020, Winner of Nordic Energy Challenge 2022, etc. She is Vice Chair in IEEE Power and Energy Society & Power Electronics Society, Sweden, and she is Associate Editor for IEEE Transactions on Smart Grid, IEEE Transactions on Transportation Electrification, and IEEE Journal of Emerging and Selected Topics in Power Electronics.