THE DEVELOPMENT OF A HIGH-PERFORMANCE COMPUTING (HPC) SOFTWARE FRAMEWORK FOR POWER GRID SIMULATIONS AND BEYOND

presented by

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**Abstract:**
The electric power and energy system is undertaking a dramatic change with the extensive integration of smart grid technologies, intermittent renewable sources, and distributed generations. This rapid change results in an urgent need for high-performance computing (HPC) enabled fast power grid simulations to facilitate real-time decision support and operations. GridPACK™ is an open-source parallel computing framework specifically designed to support the development of HPC based power grid simulations. In this talk, the ideas, challenges, approaches, and current & perspective work on GridPACK development will be briefly covered to introduce the general pipeline of HPC software framework and how it may be leveraged to provide a solution for practical HPC relevant problems in other domain areas.

**Bio:**
Dr. Shuangshuang Jin is an Associate Professor of School of Computing at Clemson University based in Charleston. Her research interests include high-performance computing (HPC), big data, and machine learning, and with a special focus on their applications to electric power and energy system such as power system modeling & simulations and advanced grid analytics. Prior to joining Clemson University, Dr. Jin was a senior research scientist at Pacific Northwest National Laboratory (PNNL) contributing to multiple DOE or DOD funded projects such as GridLAB-D, GridPACK, CASSMT, and AGM, etc. She has 10+ invention disclosure reports, copyrights, and patent applications with PNNL, and 40+ technical articles published in high-prestige journal or conferences such as IEEE Transactions on Smart Grid, IEEE Transactions on Power Systems, International Journal of High Performance Computing Applications, and IEEE International Parallel & Distributed Processing Symposium (IPDPS).