# UI-ASSIST WEBINAR:
# Context-aware Disaggregation of Behind-the-Meter PV/Load Using Machine Learning

U.S. INDIA COLLABORATIVE FOR SMART DISTRIBUTION SYSTEM WITH STORAGE

**Due to high penetrations of behind-the-meter (BTM) PV in secondary distribution systems and the inherent variability of PV, there is a strong interest in securing better visibility of PV output. Better visibility of PV can help in multiple applications including cold load pickup, DER-based outage management, load modeling and better CVR/voltage control. However, in most installations of BTM PV, the real-time output is not available to operators. We are developing a novel machine learning framework to build accurate and flexible estimation models to disaggregate BTM PV from net load measurements. As an initial step in this effort, we present a specific framework designed to estimate power generation of solar panels. The framework uses measurement data collected from primary network at transformers interface, loads in secondary network, selected solar panels in secondary network, and weather station data. We discuss the data processing, feature extraction, feature selection, and modeling steps developed as part of the framework. We use the prepared data to train different kinds of machine learning models, including deep learning. Using both real-world (Maui) and simulation (GridLab-D) data, we show that solar power generation can be estimated with accuracy as high as 98% using our framework.**

**Please join our monthly UI-ASSIST webinar on May 30, 2019, 11am – 12pm PST**

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**Dr. Assefaw Gebremedhin** is an assistant professor in the School of Electrical Engineering and Computer Science at Washington State University, where he leads the Scalable Algorithms for Data Science (SCADS) Lab. His broad research interests include: data mining and machine learning and their use in applications including power grids, network science, bioinformatics, and high-performance computing.

**Dr. Anurag Srivastava** is an associate professor of electric power engineering at Washington State University and the technical lead of the UI-ASSIST project. His high impact research in synchrophasor applications and cyber-power grid resiliency is supported for more than $50M by US Department of Energy, National Science Foundation, and other entities. He is an IEEE distinguished lecturer and author of more than 300 technical publications.

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***UPCOMING WEBINARS (11am PST): June 27: GE July 25: VCS***