



## THE NORTH AMERICAN SYNCHROPHASOR INITIATIVE WEBINAR SERIES

### Dr. Mohini Bariya (PingThings, presenting doctoral thesis from UC Berkeley) **Applications of Time Synchronized Measurements in the Electric Grid**



Dr. Mohini Bariya received her PhD in Electrical Engineering from UC Berkeley in 2021. Her dissertation research focused on using micro-PMU measurements to improve situational awareness in distribution networks. Currently, she leads the data and applications team at PingThings.

Electric grid operators need increased situational awareness—a refined understanding of the system’s real-time state—to meet the challenges posed by load growth and diversification, renewable generation integration, extreme weather events, and cyberattacks. The proliferation of measurement devices in the electric grid is critical for situational awareness but is not sufficient: measurements need to be converted to actionable insight to be useful. Here, computational tools that ingest measurements to infer system parameters and state are key. While a plethora of such tools has been proposed in the research literature, all too often their real-world use is limited, resulting in a circumstance where ballooning volumes of measurements are perceived as overwhelming rather than insightful, diminishing the incentive for further sensor deployment.

In this talk, Dr. Mohini Bariya will argue for the creation of usable tools to bridge the chasm between research and deployment and unlock the value of measurement data. She asserts that usable tools must have practically realizable data input requirements and—in their forms and outputs—work in effective collaboration with human users. Such tools are well suited to the demands of real grids, where data and prior knowledge remain scarce, and where safety critical decisions involve human participants. She will describe several usable tool algorithms for the use cases of topology estimation and monitoring in distribution networks, event detection, and event classification. Finally, she will present broad principles for the further development of usable tools. Throughout the presentation an emphasis will be made on how high resolution, time synchronized measurements are particularly enabling for the creation of usable tools.

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**Wednesday, February 23, 2022**  
**10:00 a.m. Pacific / 1:00 p.m. Eastern (1 hr.)**  
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