

WEBINAR SERIES

PMU Adequacy for Monitoring Data Center Oscillations

Wednesday, March 18, 2026, at 10 a.m. PT (1 p.m. ET)

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AI training data centers with periodic load profiles induce grid oscillations across a wide frequency range. Monitoring these oscillations is critical for grid operation. This talk will evaluate the adequacy of existing measurement systems, particularly phasor measurement units (PMUs), and examine their limitations in observing higher-frequency oscillations arising from constraints in reporting rates and estimation filter designs. It will demonstrate that PMUs, even when configured with higher reporting rates, may significantly attenuate AI-load-induced oscillations, giving an optimistic view of system reliability. The talk will cover how system operators, aware of these limitations, may design monitoring and compliance thresholds for data center oscillations. It will also motivate the use of high-resolution point-on-wave (POW) measurements as a complement to PMUs for high-frequency oscillation monitoring.

Meet the Presenter



Kaustav Chatterjee is a power systems research engineer at the Pacific Northwest National Laboratory. His research focuses on power system dynamics and stability, advanced measurements, and design of analytics for wide-area monitoring and situational awareness. He received Ph.D. in Electrical Engineering from Penn State in 2022 and M.Tech. from the Indian Institute of Technology Bombay in 2018. He currently co-leads the NASPI–IEEE joint task force on the state-of-practice and adoption of synchro-waveform measurement systems.

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