



SPECIAL SEMINAR

Tuesday, March 3, 2020, 10 am – 11 am, WEB 236C

LLNL's Power Grid Research under Cyber and Infrastructure Resilience Program

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Abstract

Lawrence Livermore National Laboratory (LLNL) has a mission of strengthening the United States' security through development and application of world-class science and technology to enhance the nation's defense across the full spectrum of threats, reduce the global threat from terrorism and weapons of mass destruction and respond with vision, quality, integrity and technical excellence to scientific issues of national importance. LLNL's main programs include Global Security, National Ignition Facility and Weapons and Complex Integration. The Cyber and Infrastructure Resilience Program is part of LLNL's Global Security Directorate. Its mission is to enhance the security and resilience of the nation's critical infrastructure systems and networks to cyber, physical, and environmental hazards and to enable their reliable and sustainable design and operation now and into the future. The program focuses primarily on the lifeline infrastructure sector areas — energy, defense, communications, transportation and water — but also is concerned with several other sectors. In this talk, we will start with a broad overview of LLNL, and then focus on Cyber and Infrastructure Resilience Program. We will highlight our capabilities ranging from High Performance Computing enhanced modeling/simulation of cyber-physical systems, DER integration, machine learning and data analytics for threat detection and response; risk, resilience, uncertainty analysis and optimization, and software assurance. We will highlight projects that leverage these capabilities, in Energy Infrastructure area while also underlining research activities in other areas, with specific focus on DOE funded activities.

Biography



Dr. Vaibhav Donde is currently an Associate Program Leader for Energy Infrastructure at Lawrence Livermore National Laboratory. In this role he is responsible for managing project portfolio focusing on secure, resilient, reliable and sustainable design and operation of the nation's energy infrastructure systems. He is also a Group Leader for the Energy Delivery and Utilization Group within the Computational Engineering Division. Since he joined the lab in 2017, he has served as a lead on efforts focused on power grid modeling and simulation, distributed energy resource integration, infrastructure interdependencies, and high performance computing applications for power grid security and resilience. Prior to LLNL, Vaibhav spent four years at PG&E as a project lead deploying smart grid technologies into utility's distribution grid and eight years at ABB US Corporate Research Center focusing on automation algorithms for EMS/DMS applications. He has held postdoctoral position at Lawrence Berkeley National Lab and received his Ph.D. and M.S. degrees in Electrical Engineering from the University of Illinois at Urbana-Champaign. He holds 10 US patents in the area of smart grid technology and grid modernization.