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SenSIP Seminar Series

An overview to the connection reconfiguration algorithms for photo-voltaic (PV) arrays to improve power output

Presenter: Vivek Narayanaswamy
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January 18, 2019, 3:00 PM / Room: GWC 487

Abstract

With the growing demand in the production of renewable energy, photovoltaic (PV) systems have played an important role in meeting the energy requirements. However, the production of photovoltaic energy is affected by certain conditions such as partial shading, temperature, soil and wind. Among these, partial shading causes a significant reduction in power. On the other hand, the energy production can also be affected if a PV array system consists of faulty modules. With recent advancement in PV technology, PV array panels can be equipped with smart switching devices that can be to used to modify the electrical connection between two panels and communicate to a central server. A change in the electrical connections under partial shading or faulty conditions can be leveraged to improve the overall electrical power produced by the PV system by a considerable margin. In this talk, we will introduce certain traditional techniques and gradually transition to how this issue in PV arrays can also be formulated as a machine learning problem.

Biography:

Vivek Sivaraman Narayanaswamy received his B.E degree in electronics and communication engineering at S.S.N College of Engineering, Anna University, Tamil Nadu, India, in 2017. He is currently a graduate student in the School of Electrical, Computer and Energy Engineering at ASU, Tempe, AZ. He completed an internship with Qualcomm R&D in summer 2018. His research interests include machine learning for solar applications and to investigate possible metrics and deep learning frameworks that can be used for speech processing applications. .

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