



UCF

FACULTY RESEARCH TALKS

LISTEN. LEARN. COLLABORATE.

Zoom talk | Friday, March 1, 2024 | Noon to 1 p.m.



INDUSTRY SPOTLIGHT: TESLA

HUSSAM AL-ATRASH '07

Senior Staff

Power Electronics Controls Engineer

Tesla

Tesla's Grid Forming Megapacks: Highlights and Lessons Learned

Grid-forming controls technology is essential to enable the transition of the power grid to renewable energy. This talk will give an overview of Tesla's history and experience deploying grid-forming energy storage projects at scale. It will first cover highlights of the Megapack program, including some of the largest deployments. This will be followed by a deeper dive into the technical design of Tesla's grid-forming technology, and a discussion of technical challenges related to hardware design limitations and the need for new standards.

Dr. Al-Atrash received his doctorate in electrical engineering in 2007 from UCF and worked at the Florida Power Electronics Center. He now leads the power controls team for Tesla Energy Products, which he joined in 2015. The team is responsible for modeling, algorithm design and implementation for on-board chargers, superchargers, Powerwall, solar inverters, power packs and Megapacks. This includes controls at the power electronics level, as well as microgrid and plant level controls necessary to transition to a grid dominated by renewables. Prior to Tesla, Dr. Al-Atrash was a co-founder and controls lead for Petra Solar, a micro inverter startup started through the UCF Office of Technology Transfer.