

AIT/IEEE PES Austria Chapter Lecture Series

HYDROPOWER GENERATION IN THE AGE OF CLIMATE CHANGE: LEVERAGING CAUSAL AI

Reza Arghandeh, Professor, [Western Norway University of Applied Sciences](#), Bergen, Norway and
Lead Data Scientist, [StormGeo AS](#), Norway

Friday, April 28, 2023, 10:00 - 11:00 (hybrid)

Registration

Participation is free but [registration](#) is required! Login information for joining the online event will be provided right before the event starts!

Abstract

The talk will explore the intricate and dynamic nature of hydropower generation systems, and the challenges arising from variable renewable energy resources and climate change that can introduce significant uncertainty and complexity into conventional hydropower scheduling tools. Our team has developed state-of-the-art hydropower scheduling tools that leverage artificial intelligence techniques to optimize water resource management, resulting in enhanced efficiency and effectiveness of hydropower plant operations. Specifically, we will present our latest research outcomes on Causal AI-based hydropower inflow forecasting algorithms that utilize hydrological and meteorological data to account for spatiotemporal interdependencies among various reservoirs' inflow and water capacity in cascaded water catchments. Attendees will gain insights into our collaboration with Norwegian Hydropower producers and the real-life use cases that demonstrate the potential of our solution to address the pressing challenges of hydropower generation.

About the Speakers

Dr. Reza Arghandeh is currently the Director of the Connectivity, Information & Intelligence Lab (Ci2Lab.com) and leads the Data Science Group at Western Norway University of Applied Sciences (HVL) in Bergen, Norway. He also serves as the Lead Data Scientist at StormGeo, an international company providing weather insights. In addition, he is a Research Professor in the Electrical and Computer Department at Florida State University. Prior to this, he worked as an Assistant Professor at FSU from 2015 to 2018 and a Postdoctoral Scholar at the EECS Department of the University of California, Berkeley, from 2013 to 2015. Prof. Arghandeh earned his Ph.D. in Electrical Engineering from Virginia Tech. His research interests focus on artificial intelligence and causal inference applications for infrastructure networks, with a particular emphasis on electric grids. His research has been funded by prestigious organizations such as the U.S. National Science Foundation, the U.S. Department of Energy, the European Space Agency, the European Commission, and the Research Council of Norway.

Organizers

This event is jointly organized by the [IEEE PES Chapter Austria](#), the [IEEE IAS/PELS/IES Joint Chapter Austria](#), and the [AIT Austrian Institute of Technology - Center for Energy](#).

Location

Hybrid - AIT Austrian Inst. of Technology, Giefinggasse 2, 1210 Vienna, Austria, GG2_F4_M2, 4th Floor and online

Contact

Thomas Strasser (thomas.i.strasser@ieee.org)