

NORTH CAROLINA STATE UNIVERSITY

**OPERATIONS RESEARCH PROGRAM
SEMINAR SERIES**

**April 15th, 2024
4:30PM-5:45PM**

In-Person: 4290 Fitts-Woolard Hall

[Zoom](#) details – bottom of page

Dr. Anderson de Queiroz

**Associate Professor, Department of Civil,
Construction, and Environmental Engineering at NC State
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Title

**Enhanced Coordination of Renewable Energy Resources through
Sampling-based Decomposition in Multi-stage Stochastic Programs**

Abstract

The dynamic intersection of economic growth and society well-being depends significantly on the effective management and strategic utilization of natural resources, highlighted by the pursuit of sustainable methodologies. Within this context, the critical role of integrating clean and dependable water and power infrastructures cannot be overstated, particularly as we navigate towards an era marked by substantial investments in renewable energy, energy storage, and smart technologies. In the current energy transition, the interdependence between these infrastructures is even more important, and requires sophisticated methodologies to handle challenges with temporal and spatial dynamics, as well as variability. This presentation is focused on renewable energy coordination challenges, framed within the context of Multi-stage Stochastic Programming. It highlights the application of a sampling-based decomposition technique, specifically designed to address the complexities of such Multistage Stochastic Renewable Coordination problems effectively. This approach not only facilitates enhanced decision-making but also sets a precedent for optimizing renewable energy utilization in sustainable energy futures.

Biography



Dr. Anderson de Queiroz

Dr. Anderson de Queiroz received his B.Sc. in 2005 and M.Sc. in 2007 in electrical engineering from Federal University of Itajubá (UNIFEI) in the state of Minas Gerais in Brazil. He has a Ph.D. in operations research from the University of Texas at Austin (2011). He is an Associate Professor at the Department of Civil, Construction, and Environmental Engineering at North Carolina State University (NCSU), where he is a member of the Computing & Systems group and the Operations Research graduate program. Prior to joining NCSU, he worked as a professor at UNIFEI and at North Carolina Central University. He served as consultant and researcher in many sponsored projects (including NSF, CBTS/DHS, NCROEP, MSRDC, ANEEL, PETROBRAS, VALE, CPFL, AES, ENERGISA) in the United States and Brazil. He is interested in the synergy of data and computational innovation to inform strategic decision-making in energy, water, and power systems. He focuses on optimization under uncertainty, data-driven methods and predictive analytics applied to planning, operations, and economics in clean and sustainable energy systems, water-energy nexus, coastal engineering, and biosecurity.

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