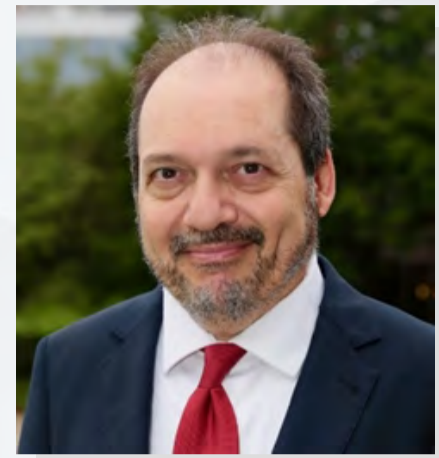


Global optimization with integers: model-based and data-driven approaches



24 May 2023 (Wed)
10:30 am

Seminar Link:

<https://cityu.zoom.us/j/92482280970>

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Abstract

We present recent methodological developments in the context of three closely related computational optimization projects:

1. The BARON project for algebraic optimization through a spatial branch-and-bound algorithm that exploits various convexification techniques.
2. The ALAMO project, which relies on algebraic global optimization (BARON) to build simple models from data while enforcing shape constraints.
3. The BAM project for data-driven optimization through the integration of sampling, partitioning, and global optimization (BARON) of local algebraic surrogates constructed from data (ALAMO).

We discuss connections between the three projects, report on the status of each project and their integration, and present computations on established benchmarks and applications.

About the Speaker

Nick Sahinidis is Butler Family Chair and Professor of Industrial & Systems Engineering and Chemical & Biomolecular Engineering at the Georgia Institute of Technology. Dr. Sahinidis previously taught at the University of Illinois at Urbana-Champaign (1991-2007) and Carnegie Mellon University (2007-2020). He has pioneered algorithms and developed widely used software for optimization and machine learning. He received the INFORMS Computing Society Prize in 2004, the Beale-Orchard-Hays Prize from the Mathematical Programming Society in 2006, the Computing in Chemical Engineering Award in 2010, the Constantin Carathéodory Prize in 2015, and the National Award and Gold Medal from the Hellenic Operational Research Society in 2016. He is a member of the US National Academy of Engineering, a fellow of INFORMS, a fellow of AIChE, a fellow of the Asia-Pacific Artificial Intelligence Association, and the Editor-in-Chief of Optimization and Engineering.