BOYA HOU

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EDUCATION

University of Illinois, Urbana-Champaign 2024 (expected)
PhD student in Electrical and Computer Engineering GPA: 3.97/4.00
Advisor: Subhonmesh Bose
Committee: Tamer Basar, Subhonmesh Bose, Maxim Raginsky, Rayadurgam Srikant, Umesh Vaidya

University of Illinois, Urbana-Champaign 2019
Master of Engineering in Electrical and Computer Engineering GPA: 3.93/4.00

Zhejiang University 2019
Bachelor of Engineering in Electrical Engineering GPA: 3.89/4.00

RESEARCH INTERESTS

My research interests lie in the area of autonomy. I aim to reconcile the classical model-based decision-making with the modern learning-based approach. I draw on tools from applied mathematics, machine learning, and control theory to develop efficient data-driven algorithms in uncertain environments with theoretical guarantees, with a focus on applications to electric power grids and electrified transportation.

PUBLICATIONS

[1] **B. Hou**, S. Sanjari, N. Dahlin, S. Bose, U. Vaidya, "Sparse Learning of Dynamical System in Reproducing Kernel Hilbert Space: An Operator-Theoretic Approach", in Proceedings of *the Fortieth International Conference on Machine Learning (ICML)*, 2023.

[2] **B. Hou**, S. Sanjari, N. Dahlin, S. Bose, "Compressed Decentralized Learning of Conditional Mean Embedding Operators in Reproducing Kernel Hilbert Space", in Proceedings of *the 37th Association for the Advancement of Artificial Intelligence (AAAI) Conference on Artificial Intelligence*, 2023.

[3] **B. Hou**, A.Reddy Ramapuram Matavalam, S.Bose, U.Vaidya, "Propagating Uncertainty Through System Dynamics in Reproducing Kernel Hilbert Space ", under submission at *Physica D: Nonlinear Phenomena.*

→ Also presented as a poster paper at *American Control Conference (ACC)*, 2023.

[4] A.Reddy Ramapuram Matavalam, **B. Hou,** H.Choi, S.Bose, U.Vaidya, "Data-Driven Transient Stability Analysis Using the Koopman Operator", under submission at *IEEE Transactions on Power Systems*.

[5] **B. Hou**, S. Bose and U. Vaidya, "Sparse Learning of Kernel Transfer Operators", in Proceedings of *Asilomar Conference on Signals, Systems, and Computers*, 2021.

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[6] **B. Hou**, S. Bose, L. Marla and K. Haran, "Impact of Aviation Electrification on Airports: Flight Scheduling and Charging", IEEE Transactions on Intelligent Transportation Systems, 2023.
[7] **B. Hou**, S. Bose, and K. Haran, "Powering Electric Aircraft at O'Hare Airport: A Case Study", in Proceedings of *IEEE Power and Energy Society General Meeting*, 2020.

WORK IN PROGRESS

"Compressed Online Learning of the Conditional Mean Embedding", with A.Koppel, S.Sanjari, S.Bose, to be submitted to *the Conference on Learning Theory (COLT)* shortly.

AWARDS

- Rising Stars in EECS, 2023
- Mavis Future Faculty Fellows (MF3), 2023-2024
- M.A.Pai Scholarship, 2023
- AAAI Student Scholarship, 2023
- The second-place winner in the United States Association for Energy Economics (USAEE) Case Competition, 2019.
- Outstanding undergraduate thesis of Zhejiang University, 2018.
- UCLA Cross-disciplinary Scholars in Science and Technology (CSST) Scholarship, 2017
- First-Class Scholarship of Zhejiang University, 2015.

TEACHING

Fall 2021, Teaching Assistant, ECE 365 Data Science and Engineering, UIUC

INVITED PRESENTATIONS

- "Compressed Learning of Dynamical Systems" at the EECS Rising Stars Workshop, hosted by Georgia Tech Nov. 2023
- "Compressed Learning of Dynamical Systems", to be presented at the Algorithms & Randomness Center (ARC) colloquium at Georgia Tech, invited by Prof. Will Perkins Feb. 2024

OTHER ACADEMIC ACTIVITIES

- Led weekly reading group on learning in games and mean field games. Regular attendees include Prof. Subhonmesh Bose, Prof. Gokce Dayanikli and students from Prof. Subhonmesh Bose's and Prof. Tamer Basar's group. Fall 2023
- Led weekly reading group on function analysis. Regular attendees include Prof. Umesh Vaidya from Clemson University, Prof. Amarsagar Reddy Ramapuram Matavalam from Arizona State

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Univerisity, students from Prof. Bose's and Prof. Vaidya's group. July 2021-Dec. 2021

- Visiting undergrad scholar**,** Henry Samueli School of Engineering, UCLA. July 2017-Sep. 2017

TECHNICAL SKILLS

Programming: Python, C, C++
Applications: OpenAI Gym, Matlab, Simulink, Sklearn, CVXPY.