BOYA HOU

306 North Wright Street, Urbana, IL

boyahou2@illinois.edu

https://boyahou.github.io/

EDUCATION

University of Illinois, Urbana-Champaign   2024 (expected)
PhD student in Electrical and Computer Engineering
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

Zhejiang University   2019
Bachelor of Engineering in Electrical Engineering

RESEARCH INTERESTS

My research interests lie in the area of autonomy. I draw on tools from applied mathematics, machine learning, and control theory to develop efficient data-driven learning and decision-making algorithms with theoretical guarantees.

PUBLICATIONS AND PREPRINTS

Journal Publications

[1] **B. Hou**, A.Reddy Ramapuram Matavalam, S.Bose, U.Vaidya, "Propagating Uncertainty Through System Dynamics in Reproducing Kernel Hilbert Space ", *Physica D: Nonlinear Phenomena. Special issue: Topics at the Interface of Machine Learning and Dynamical Systems,* 2024.
   → Also presented as a poster paper at *American Control Conference (ACC)*, 2023.

[2] **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.

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Machine Learning Conference Publications

Note: Publications in this section are designated journal quality publications in that they are at top tier conferences where papers are viewed as the end product of the research.

[3] **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.

[4] **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.

Other Peer-Reviewed Conference Publications

[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.

[6] **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.

Preprints

[7] **B.Hou**, S.Sanjari, A.Koppel, S.Bose "Compressed Online Learning of the Conditional Mean Embedding", https://arxiv.org/abs/2405.07432, 2024.

[8] Reddy Ramapuram Matavalam, **B. Hou**, H.Choi, S.Bose, U.Vaidya, "Data-Driven Transient Stability Analysis Using the Koopman Operator", under submission at the International Journal of Electrical Power and Energy Systems.

AWARDS

- Rising Stars in EECS, 2023
- Mavis Future Faculty Fellows (MF3), UIUC, 2023-2024
- M.A.Pai Scholarship, UIUC, 2023
- Association for the Advancement of Artificial Intelligence (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

Nonparametric Compressed Learning of Dynamical Systems

- April 2024, Northwestern, the 10th Midwest Workshop on Control and Game Theory.
- April 2024, UIUC, group meeting of Prof. R.Srikant and Prof. Carolyn Beck.
- March. 2024, MIT, group meeting of Prof. Navid Azizan.
- Feb. 2024, Georgia Tech, Algorithms and Randomness Center (ARC) colloquium.
- Nov.2023, Georgia Tech, EECS Rising Stars Workshop.
- Nov. 2023, University of Illinois, Urbana-Champaign, Grad Seminar in Special Topics.
- July 2023, International Conference on Machine Learning (ICML).
- May 2023, American Control Conference (ACC).
- Feb. 2023, Association for the Advancement of Artificial Intelligence (AAAI) Conference on Artificial Intelligence.

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

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- 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.