Xu Du

CONTACT INFO

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EXPERIENCE

- Postdoctoral Researcher, Artificial Intelligence Thrust, Information Hub, The Hong Kong University of Science and Technology (Guangzhou), 2025.5-now.
- Research Assistant, Artificial Intelligence Thrust, Information Hub, The Hong Kong University of Science and Technology (Guangzhou), 2025.4.
- Assistant Researcher, Institute of Mathematics HNAS, Henan Academy of Science, 2023.7-2025.3.
- Postdoctoral Researcher, National Key Laboratory of Science and Technology on Communications, University of Electronic Science and Technology of China, 2023.1-2023.6.

EDUCATION

University of Chinese Academy of Sciences
Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences Sep.2017-Sep.2022
Ph.D, Communication and Information Systems Engineering (Supervised by Boris Houska, ShanghaiTech University)

Zhengzhou University Sep.2013-June.2017
B.E,Computer Science, School of Information Engineering

RESEARCH INTERESTS

- Distributed Optimization
- Optimal Experiment Design
- Optimal Control
- Algorithmic Game Theory
- Robust Optimization
- Wireless Communication
- Power Systems

PROJECTS

HKUST(GZ) Postdoctoral Funding: May.2025-May.2027
Theory and Application of Distributed Numerical Optimization Algorithms (Project Number: P00560)

PUBLICATION

∗: corresponding author
†: equal contribution

- **X.Du**, K. H. Johansson, A. I. Rikos∗
  Decentralized Optimization via RC-ALADIN with Efficient Quantized Communication.
  The 64th IEEE Conference on Decision and Control (CDC), Rio de Janeiro, Brazil, 2025
  (accepted)

- S.Wu†, Y.Wang†, J.Wang, A. I. Rikos and **X.Du**∗
  A Time Splitting Based Optimization Method for Nonlinear MHE.
  The 64th IEEE Conference on Decision and Control (CDC), Rio de Janeiro, Brazil, 2025
  (accepted)

- Y.Wang, S.Wu, G.Yang, J.Chu, A. I. Rikos and **X.Du**∗
  ALADIN-β: A Distributed Optimization Algorithm for Solving MPCC Problems.
  The 64th IEEE Conference on Decision and Control (CDC), Rio de Janeiro, Brazil, 2025
  (accepted)

- **X.Du**∗, X.Zhou, S.Zhu, A. I. Rikos
  Convergence Theory of Flexible ALADIN for Distributed Optimization.
  European Control Conference (ECC), Thessaloniki, Greece, 2025.

- **X.Du**, J.Wang∗.
  Distributed Consensus Optimization with Consensus ALADIN.
  American Control Conference (ACC), Denver, Colorado, USA 2025.

- X.Zhou, **X.Du**, Y.Mao∗.
  Cramér-Rao Bound Based Waveform Optimization for MIMO Radar: An Efficient Linear-Proximal Method
  Globecom Workshop 2024

- W Huang, Z Li, X He, J Xiang, **X.Du**, X Liang∗.
  Drl-based dynamic destroy approaches for agile-satellite mission planning.
  Remote Sensing

- **X.Du**∗†, S.Zhu†, Y.Wang†, B.Han†, X.He†.
  Optimal Resilience Design of AC Microgrid using AO-SBQP Method.
  The 22nd IFAC World Congress, Yokohama, Japan, 2023

- **X.Du**∗, A.Engelmann, T.Faulwasser, B.Houska.
  Approximations for Optimal Experimental Design in Power System Parameter

Estimation.
The 61st IEEE Conference on Decision and Control (CDC), Cancún, Mexico, 2022 (invited session)

- S.Zhu[†], **X.Du**[†*].
Alternating Direction Based Sequential Boolean Quadratic Programming Method for Transmit Antenna Selection.
The 61st IEEE Conference on Decision and Control (CDC), Cancún, Mexico, 2022

- B.Han, X.Liang[*], Z.Xie, **X.Du**, X.He.
Communication Enhancement Model of Intelligent Reflecting Surface Based on Cooperative Relationship. (in Chinese)
Laser & Optoelectronics Progress, 2021

- **X.Du**[*], A.Engelmann, T.Faulwasser, B.Houska.
Online power system parameter estimation and optimal operation.
In Proceedings of the 2021 American Control Conference (ACC), New Orleans, USA May, 2021

- **X.Du**[*], A.Engelmann, Y.Jiang, T.Faulwasser, B.Houska.
Optimal Experiment Design for AC Power Systems Admittance Estimation.
In Proceedings of the 21rst IFAC World Congress, Berlin, Germany, July, 2020

- **X.Du**, A.Engelmann[*], Y.Jiang, T.Faulwasser, B.Houska.
Distributed State Estimation for AC Power Systems using Gauss-Newton ALADIN.
In Proceedings of the 58th IEEE Conference on Decision and Control (CDC), Nice, France, December, 2019.

PROFESSIONAL SERVICE

Conference Session Chair/Co-chair

- Co-chair of the invited session for the 61st IEEE Conference on Decision and Control (CDC 2022) "Trends in Optimization for Power Systems", Cancún, Mexico (together with Alexander Engelmann, Yuning Jiang, Timm Faulwasser, Boris Houska)

Technical Meetings—Leadership Roles

- Co-organizer, International Workshop on Advanced Methods for Control and Estimation of Dynamic Systems (AMCEDS 2018), ShanghaiTech University, Shanghai, China, July 23, 2018

Technical Reviewer

- Selected journals: Optimal Control Applications & Methods
- Selected international conferences: IEEE CDC, IFAC World Congress, ICCA

PRESENTATION

- Distributed Consensus Optimization with Consensus ALADIN.
American Control Conference (ACC), Denver, Colorado, USA, 2025, July 9, 2025.
- Convergence Theory of Flexible ALADIN for Distributed Optimization
European Control Conference (ECC), Thessaloniki, Greece, June 26, 2025.

- Robust Convergence Analysis of Distributed Optimization Algorithms
  Singapore University of Technology and Design, Singapore, March 4th, 2024 (Online)
- Sub-linear Convergence of ADMM
  ShanghaiTech, China, December 8th, 2022 (Online)
- Distributed Optimization with ADMM and ALADIN
  Innovation Academy for Microsatellite, Chinese Academy of Sciences, China, November, 2021
- Online power system parameter estimation and optimal operation
  2021 American Control Conference (ACC), New Orleans, USA May, 2021 (online)
- Optimal Experiment Design for AC Power Systems Admittance Estimation
  21rst IFAC World Congress, Berlin, Germany, July, 2020 (online)
- Distributed State Estimation for AC Power Systems using Gauss-Newton ALADIN
  58th IEEE Conference on Decision and Control (CDC), Nice, France, December, 2019.

HONORS AND AWARDS

- Merit Student, ShanghaiTech University, 2019-2020
- SIST Outstanding Teaching Assistant Award, ShanghaiTech University, 2019-2020
- Outstanding Student Award, Zhengzhou University, 2014-2017
- YiSheng Scholarship, Zhengzhou University, 2015

URL LINKS

- Google Scholar: `https://scholar.google.com/citations?user=OnIuCR0AAAAJ`
- ResearchGate: `https://www.researchgate.net/profile/Xu-Du-9`
- ORCID: `https://orcid.org/my-orcid?orcid=0009-0007-6789-1222`

ADVISING

Main supervised Student:

- Main supervisor of **Shuting Wu**, School of Mathematics and Statistics, North China University of Water Resources and Electric Power (NCWU) and Henan Acamedy of Science, 2024-2027.

Co-supervised Students:

- Co-supervisor of **Shijie Zhu**, Innovation Academy for Microsatellite, Chinese Academy of Sciences and ShanghaiTech University, 2021-2023. (Master 2023, now with China Telecom)
- Co-supervisor of **Yifei Wang**, Innovation Academy for Microsatellite, Chinese Academy of Sciences and ShanghaiTech University, 2021-2023. (now Ph.D in Shanghai Jiaotong University)

- Co-supervisor of **Boyu Han**, Innovation Academy for Microsatellite, Chinese Academy of Sciences, 2021. (Master 2021, now Ph.D in Shanghai Jiaotong University)

TEACHING

ShanghaiTech University:

- Teaching Assistant, Introduction to Communication Systems (EE140), ShanghaiTech University, Fall 2021 (Instructor: Professor Lixiang Lian).
- Teaching Assistant, Signals and Systems Lab(EE150L), ShanghaiTech University, Spring 2021 (Instructor: Linyan Lu and Ping Wang).
- Teaching Assistant, Introduction to Control(EE160), ShanghaiTech University, Fall 2020
  `https://faculty.sist.shanghaitech.edu.cn/faculty/boris/courses.html`
  (Instructor: Professor Boris Houska and Professor Yang Wang).
- Teaching Assistant, Introduction to Control Project(EE160P), ShanghaiTech University, Fall 2020
  (Instructor: Professor Boris Houska and Professor Yang Wang).
- Teaching Assistant, Signals and Systems(EE150), ShanghaiTech University, Spring 2020
  (Instructor: Professor Yong Zhou, Professor Ziping Zhao, Professor Xin Lou and Professor Lin Xu).
- Teaching Assistant, Numerical Analysis(SI211), ShanghaiTech University, Fall 2019
  `https://faculty.sist.shanghaitech.edu.cn/faculty/boris/courses.html`
  (Instructor: Professor Boris Houska).
- Teaching Assistant, Design Thinking, ShanghaiTech University, Fall 2018 and Spring 2019.
  (Instructor: Professor Ding Lu, Professor Xiyi Yang and Professor Xue Chen)
- Teaching Assistant, Signals and Systems(EE150), ShanghaiTech University, Spring 2018 (Instructor: Professor Yanlin Geng)

MISCELLANEOUS

- **X.Du**, J.Wang.
  Consensus ALADIN: A Framework for Distributed Optimization and Its Application in Federated Learning. *Technical report, 2023.*
  PDF available at `https://arxiv.org/pdf/2306.05662.pdf`

REFEREES

- **Prof. Apostolos Rikos** Postdoc Supervisor
  Assistant Professor
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  The Hong Kong University of Science and Technology (Guangzhou), Guangzhou, China
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- **Prof. Yijie Mao** Collaborator
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- **Prof. Kwan-Wu Chin** Collaborator
  Professor
  School of Electrical, Computer and Telecommunications Engineering (SECTE), University of Wollongong, Wollongong, Australia
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- **Prof. Themistoklis Charalambous** Collaborator
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- **Mohammad Javad Habibi** Collaborator
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- **Prof. Boris Houska** Ph.D Supervisor
  Associate Professor
  STAR Center, School of Information Science and Technology, ShanghaiTech University, Shanghai, China
  E–Mail: borish@shanghaitech.edu.cn

- **Prof. Sören Schwertfeger** Director of STAR Center
  Associate Professor
  STAR Center, School of Information Science and Technology, ShanghaiTech University, Shanghai, China. Director of Mobile Autonomous Robotic Systems Lab (MARS Lab)
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