

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. (Supervised by Apostolos Rikos)
- 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

ShanghaiTech University 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

C12 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

C11 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

C10 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

C9 X.Du*, X.Zhou, S.Zhu, A. I. Rikos

Convergence Theory of Flexible ALADIN for Distributed Optimization.

European Control Conference (ECC), Thessaloniki, Greece, 2025.

C8 X.Du, J.Wang*.

Distributed Consensus Optimization with Consensus ALADIN.

American Control Conference (ACC), Denver, Colorado, USA 2025.

C7 X.Zhou, **X.Du**, Y.Mao*.

Cramér-Rao Bound Based Waveform Optimization for MIMO Radar: An Efficient Linear-Proximal Method

Globecom Workshop 2024

J2 W Huang, Z Li, X He, J Xiang, **X.Du**, X Liang*.

Drl-based dynamic destroy approaches for agile-satellite mission planning.

Remote Sensing

C6 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

C5 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)

C4 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

J1 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

C3 **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

C2 **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

C1 **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, ACC, IFAC World Congress, ICCA.

PRESENTATION

- Decentralized Optimization via RC-ALADIN with Efficient Quantized Communication.

The 64th IEEE Conference on Decision and Control (CDC), Rio de Janeiro, Brazil, December, 11, 2025.

- A Time Splitting Based Optimization Method for Nonlinear MHE.

The 64th IEEE Conference on Decision and Control (CDC), Rio de Janeiro, Brazil, December, 11, 2025.

- Theory and Applications of Distributed Numerical Optimization Algorithms.
Postdoc research proposal report, Guangzhou, China, 2025, July 28, 2025.
- 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 **Boyu Han**, Innovation Academy for Microsatellite, Chinese Academy of Sciences, 2021. (Master 2021)
Research assistant of The Hong Kong University of Science and Technology (Guangzhou).
- 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)

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>

- **X.Du**, J.Wang, X.Zhou, and Y.Mao.
A bi-level globalization strategy for non-convex consensus ADMM and ALADIN.
Technical report, 2023.
PDF available at <https://arxiv.org/pdf/2309.02660.pdf>

REFEREES

- **Prof. Apostolos Rikos** Postdoc Supervisor
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- **Prof. Themistoklis Charalambous** Collaborator
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Department of Electrical and Computer Engineering, University of Cyprus, Nicosia,
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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)
E-Mail: soerensch@shanghaitech.edu.cn

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