

# Xu Du

## CONTACT INFO

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*Address:* No. 1 Du Xue Road, Guangzhou, Guangdong, China  
*Website:* <https://fubianhanshu9.github.io/index.html>  
*E-Mail:* michaelxudu@hkust-gz.edu.cn

## EXPERIENCE

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- 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

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**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

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- 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<sup>†</sup>, Y.Wang<sup>†</sup>, 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- $\beta$ : 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**\*<sup>†</sup>, S.Zhu<sup>†</sup>, Y.Wang<sup>†</sup>, B.Han<sup>†</sup>, X.He<sup>†</sup>.  
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<sup>†</sup>, **X.Du**<sup>†\*</sup>.  
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 21st 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

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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

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- 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  
*21st 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

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- 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

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- 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

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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 Academy 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

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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

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- **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**  
 Assistant Professor  
 Artificial Intelligence Thrust, Information Hub  
 The Hong Kong University of Science and Technology (Guangzhou), Guangzhou, China  
 E-Mail: apostolosr@hkust-gz.edu.cn

Postdoc Supervisor
- **Prof. Yijie Mao**  
 Assistant Professor  
 NICE Center, School of Information Science and Technology, ShanghaiTech University, Shanghai, China  
 E-Mail: maoyj@shanghaitech.edu.cn

Collaborator
- **Prof. Kwan-Wu Chin**  
 Professor  
 School of Electrical, Computer and Telecommunications Engineering (SECTE), University of Wollongong, Wollongong, Australia  
 E-Mail: kwanwu@uow.edu.au

Collaborator
- **Prof. Themistoklis Charalambous**  
 Assistant Professor  
 Department of Electrical and Computer Engineering, University of Cyprus, Nicosia, Cyprus  
 E-Mail: charalambous.themistoklis@ucy.ac.cy

Collaborator
- **Mohammad Javad Habibi**  
 Assistant Researcher  
 Institute of Mathematics, Henan Academy of Science, Zhengzhou, China  
 E-Mail: mjhabibi@hnas.ac.cn

Collaborator
- **Sania Asif**  
 Assistant Researcher  
 Institute of Mathematics, Henan Academy of Science, Zhengzhou, China  
 E-Mail: 11835037@zju.edu.cn

Collaborator
- **Samad Noeiaghdam**  
 Research Professor  
 Institute of Mathematics, Henan Academy of Science, Zhengzhou, China  
 E-Mail: samadnoeiaghdam@gmail.com

Collaborator
- **Prof. Boris Houska**  
 Associate Professor  
 STAR Center, School of Information Science and Technology, ShanghaiTech University, Shanghai, China  
 E-Mail: borish@shanghaitech.edu.cn

Ph.D Supervisor
- **Prof. Sören Schwertfeger**  
 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

Director of STAR Center

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