

# Zhengang Guo

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Communications and Signal Processing Group,  
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## Biography

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Zhengang Guo (B.Eng.'15, Ph.D.'21) is currently a Ph.D. student of the Department of Electrical and Electronic Engineering at Imperial College London (supervised by [Dr. Wei Dai](#) and [Prof. Bruno Clerckx](#), [FIEEE](#), [FIET](#)), London, UK. He received the B.Eng. and Ph.D. degrees in mechatronic engineering from Northwestern Polytechnical University (supervised by [Prof. Yingfeng Zhang](#)), Xi'an, China, in July 2015 and June 2021, respectively. From September 2018 to September 2020, he was a joint Ph.D. student at Cardiff University (supervised by [Prof. Jianzhong Wu](#)), Cardiff, UK. He has authored 8 peer-reviewed international research papers. His research interests include super-resolution, nonconvex optimization, wireless communications, smart manufacturing, complex network modeling and optimization, smart supply chain collaboration and optimization. He serves as a peer reviewer for the IEEE Transactions on Industrial Informatics, the IEEE Transactions on Intelligent Transportation Systems, the IEEE Intelligent Transportation Systems Magazine, and Applied Energy.

## Education

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- **Ph.D., Electrical and Electronic Engineering**

January 2020 - , Communications and Signal Processing (CSP) Group, Department of Electrical and Electronic Engineering (EEE), Imperial College London, London, UK

Supervisors: [Dr. Wei Dai](#), [Prof. Bruno Clerckx](#), [FIEEE](#), [FIET](#)

- **Ph.D., Mechatronic Engineering**

September 2015 - June 2021, Department of Industrial Engineering, School of Mechanical Engineering, Northwestern Polytechnical University, Xi'an, China

Supervisor: [Prof. Yingfeng Zhang](#)

- **Joint Ph.D. (Non Degree), Electrical and Electronic Engineering**

September 2018 - September 2020, Centre for Integrated Renewable Energy Generation and Supply (CIREGS), School of Engineering, Cardiff University, Cardiff, UK

Supervisor: [Prof. Jianzhong Wu](#)

- **B.Eng., Mechatronic Engineering**

September 2011 - July 2015, Department of Industrial Engineering, School of Mechanical Engineering, Northwestern Polytechnical University, Xi'an, China

Supervisor: [Prof. Yingfeng Zhang](#)

## Research Interests

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- Super-Resolution, Nonconvex Optimization, and Wireless Communications
- Smart Manufacturing, Complex Network Modeling and Optimization
- Smart Supply Chain Collaboration and Optimization

## Research Projects

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### Primary Participant

- **Data-Knowledge Hybrid Driven Self-Adaptive Collaborative Optimal Control Approach and Its Application Verification for Discrete Manufacturing Systems**

Grant No. U2001201, Key Program Supported by National Natural Science Foundation of China, January 2022 - December 2024

- **Research and Demonstration Application of Network Collaborative Manufacturing Integration Technology for Customized Production of Rail Transit Equipment**

Grant No. 2018YFB1703400, National Key R&D Program Supported by Ministry of Science and Technology of China, June 2019 - May 2022

- **Signal Sensing, Design and Delivery for Electronic Warfare (Joint ICL-UCL Consortium, UDRC Consortium (UEDIN), and DSTL)**

Grant No. EP/S026657/1, Supported by [MOD & Engineering and Physical Sciences Research Council \(EPSRC\)](#), Value £520,757, April 2019 - March 2022

- **Research on Self-Adaptive Collaborative Optimization Approach of Smart Production-logistics Systems Based on CPS and Industrial Internet of Things**

Grant No. 51675441, General Program Supported by National Natural Science Foundation of China, January 2017 - December 2020

### Principal Investigator

- **Innovative Design of Smart Equipment Based on CPS**

Grant No. G2017KY0407, Supported by Northwestern Polytechnical University, January 2017 - December 2018

## Membership

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- Graduate Student Member, IEEE
- Graduate Student Member, IEEE Power & Energy Society

## Academic Services

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### Conference Organization

- Organizing Committee Member, [The 19th International Manufacturing Conference in China \(IMCC\) 2021](#)

- Oral Session Chair, [The Sino-German Forum on Manufacturing \(SGFM\) 2021](#)

## Peer Reviewer in Journals

- IEEE Transactions on Industrial Informatics
- IEEE Transactions on Intelligent Transportation Systems
- IEEE Intelligent Transportation Systems Magazine
- Applied Energy

## Awards

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- **Outstanding Ph.D. Graduate**  
Awarded by Northwestern Polytechnical University, March 2022
- **Huawei Scholarship**  
Awarded by Northwestern Polytechnical University & Huawei Technologies Co., Ltd, November 2020
- **Hexagon First-Class Scholarship**  
Awarded by Northwestern Polytechnical University & Hexagon AB, November 2017
- **Outstanding Graduate Scholarship/First-Class Academic Scholarship**  
Awarded by Northwestern Polytechnical University, October 2017
- **Outstanding Student Scholarship**  
Awarded by Northwestern Polytechnical University, October 2014
- **Excellence Award of National Innovation and Entrepreneurship Program**  
Awarded by Ministry of Education of China, May 2014

## Teaching

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- **EE4.07 Coding Theory (40 hours, [Dr. Wei Dai](#))**  
Graduate Teaching Assistant, Department of Electrical and Electronic Engineering, Imperial College London, October 2022 - December 2022
- **EE4.66 Topics in Large Dimensional Data Processing (50 hours, [Dr. Wei Dai](#))**  
Graduate Teaching Assistant, Department of Electrical and Electronic Engineering, Imperial College London, October 2021 - December 2021
- **EE4.66 Topics in Large Dimensional Data Processing (40 hours, [Dr. Wei Dai](#))**  
Graduate Teaching Assistant, Department of Electrical and Electronic Engineering, Imperial College London, October 2020 - December 2020

## Publications

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[Google Scholar](#) Citation = 361, h-index = 5, i10-index = 4.

Note: \* corresponding authorship.

1. **Z. Guo**, Y. Zhang\*, S. Liu, X. V. Wang and L. Wang, "Exploring self-organization and self-adaption for smart manufacturing complex networks", *[Frontiers of Engineering](#)*

- Management*, Nov. 2022, doi: 10.1007/s42524-022-0225-1. **(SCI, Sponsored by the Chinese Academy of Engineering)**
2. Z. Guo, Y. Zhang\*, X. Zhao and X. Song, "CPS-Based Self-Adaptive Collaborative Control for Smart Production-Logistics Systems", *IEEE Transactions on Cybernetics*, vol. 51, no. 1, pp. 188-198, Jan. 2021, doi: 10.1109/TCYB.2020.2964301. **(SCI, Top, IF = 19.118, ESI Highly Cited Paper)**
  3. Z. Guo, Y. Zhang\*, J. Lv, Y. Liu and Y. Liu, "An Online Learning Collaborative Method for Traffic Forecasting and Routing Optimization", *IEEE Transactions on Intelligent Transportation Systems*, vol. 22, no. 10, pp. 6634-6645, Oct. 2021, doi: 10.1109/TITS.2020.2986158. **(SCI, Top, IF = 9.551)**
  4. Y. Zhang\*, Z. Guo, J. Lv and Y. Liu, "A Framework for Smart Production-Logistics Systems Based on CPS and Industrial IoT", *IEEE Transactions on Industrial Informatics*, vol. 14, no. 9, pp. 4019-4032, Sept. 2018, doi: 10.1109/TII.2018.2845683. **(SCI, Top, IF = 11.648)**
  5. Y. Zhang\*, Z. Guo, C. Qian and R. Li, "Investigation on Process-aware Based Intelligent Modeling of Bottom Layer Manufacturing Resources and Self-adaptive Collaborative Optimization Methodology", *Journal of Mechanical Engineering*, vol. 54, no. 16, pp. 1-10, Aug. 2018, doi: 10.3901/JME.2018.16.001. **(EI(JA), Cover Paper)**
  6. Z. Guo, Y. Zhang\*, X. Zhao and X. Song, "A Timed Colored Petri Net Simulation-Based Self-Adaptive Collaboration Method for Production-Logistics Systems", *Applied Sciences*, vol. 7, no. 3, pp. 235, Mar. 2017, doi: 10.3390/app7030235. **(SCI, IF = 2.838)**
  7. Y. Liu\*, M. Yang and Z. Guo, "Reinforcement learning based optimal decision making towards product lifecycle sustainability", *International Journal of Computer Integrated Manufacturing*, vol. 35, no. 10-11, pp. 1269-1296, Jan. 2022, doi: 10.1080/0951192X.2022.2025623. **(SCI, IF = 4.420)**
  8. O. Tang, Y. Liu\*, Z. Guo and S. Wei, "Refund policies and core classification errors in the presence of customers' choice behaviour in remanufacturing", *International Journal of Production Research*, vol. 59, no. 12, pp. 3553-3571, Mar. 2021, doi: 10.1080/00207543.2021.1894498. **(SCI, Top, IF = 9.018)**

## References

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1. Dr. Wei Dai, Communications and Signal Processing Group, Department of Electrical and Electronic Engineering, Imperial College London, London, UK. E-mail: [wei.dai1@imperial.ac.uk](mailto:wei.dai1@imperial.ac.uk)
2. Prof. Bruno Clerckx, Communications and Signal Processing Group, Department of Electrical and Electronic Engineering, Imperial College London, London, UK. E-mail: [b.clerckx@imperial.ac.uk](mailto:b.clerckx@imperial.ac.uk)
3. Prof. Yingfeng Zhang, Department of Industrial Engineering, School of Mechanical Engineering, Northwestern Polytechnical University, Xi'an, China. E-mail: [zhangyf@nwpu.edu.cn](mailto:zhangyf@nwpu.edu.cn)
4. Prof. Jianzhong Wu, Centre for Integrated Renewable Energy Generation and Supply, School of Engineering, Cardiff University, Cardiff, UK. E-mail: [wuj5@cardiff.ac.uk](mailto:wuj5@cardiff.ac.uk)