

# ZHIHE ZHUANG

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**Research interests:** iterative learning control, optimal control, reinforcement learning, etc.

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## 🎓 EDUCATION

<b>Jiangnan University</b> , Wuxi, China	2019.09 – Present
<i>Ph.D. student</i> in Control Science and Engineering	<b>Supervisor:</b> Prof. Hongfeng Tao
<b>Eindhoven University of Technology</b> , Eindhoven, the Netherlands	2022.12 – 2023.12
<i>Ph.D. visiting student</i> in Mechanical Engineering (ME)	<b>Supervisor:</b> Prof. Tom Oomen
<b>Jiangnan University</b> , Wuxi, China	2015.09 – 2019.06
<i>B.Eng. student</i> in Automation	

## 📖 RESEARCH

### Journal Publications

- **Z. Zhuang**, H. Tao, Y. Chen, V. Stojanovic, W. Paszke. “An optimal iterative learning control approach for linear systems with nonuniform trial lengths under input constraints”. *IEEE Transactions on Systems, Man and Cybernetics: Systems*, 2023; 53(6): 3461-3473. (**ESI hot paper, highly cited paper**)
- **Z. Zhuang**, H. Tao, Y. Chen, V. Stojanovic, W. Paszke. “Iterative learning control for repetitive tasks with randomly varying trial lengths using successive projection”. *International Journal of Adaptive Control and Signal Processing*, 2022; 36(5): 1196-1215. (**ESI highly cited paper**)
- **Z. Zhuang**, H. Tao, Y. Chen, E. Rogers, T. Oomen, W. Paszke. “Alternating projection-based iterative learning control for discrete-time systems with non-uniform trial lengths”. *International Journal of Robust and Nonlinear Control*, 2023; 33(12): 7333-7356.
- **Z. Zhuang**, H. Tao, Y. Chen, T. Oomen, W. Paszke, E. Rogers. “Optimal iterative learning control design for continuous-time systems with nonidentical trial lengths using alternating projections between multiple sets”. *Journal of the Franklin Institute*, 2023; 360: 3825-3848.
- R. Wang, **Z. Zhuang**, H. Tao, W. Paszke, V. Stojanovic. “Q-learning based fault estimation and fault tolerant iterative learning control for MIMO systems”. *ISA transactions*, 2023; 142: 123-135.
- S. Guan, **Z. Zhuang**, H. Tao, Y. Chen, V. Stojanovic, W. Paszke. “Feedback-aided PD-type iterative learning control for time-varying systems with non-uniform trial lengths”. *Transactions of the Institute of Measurement and Control*, 2022; 45(11): 2015-2026.
- Y. Tao, H. Tao, **Z. Zhuang**, V. Stojanovic, W. Paszke. “Quantized iterative learning control of communication-constrained systems with encoding and decoding mechanism”. *Transactions of the Institute of Measurement and Control*, 2024; 46(10): 1943-1954.
- L. Gao, **Z. Zhuang**, H. Tao, V. Stojanovic, W. Paszke. “Non-lifted norm optimal iterative learning control for networked dynamical systems: A computationally efficient approach”. *Journal of the Franklin Institute*, 2024; 361(15): 107112.

### Peer-reviewed Conference Publications

- R. Maniarski, W. Paszke, H. Tao, **Z. Zhuang**. “Design of indirect-type iterative learning control for continuous-time batch processes with the repetitive process setting”. In *14th Asian Control Conference (ASCC)*, July 2024.
- L. Gao, **Z. Zhuang**, S. Guan, H. Tao, J. Qiu, W. Paszke. “Projection-based iterative learning control for linear systems with flexible tasks”. In *39th Youth Academic Annual Conference of Chinese Association of Automation (YAC)*, June 2024.
- L. Gao, **Z. Zhuang**, H. Tao, Y. Chen, W. Paszke. “A norm optimal iterative learning control approach with efficient computation”. In *IEEE 13th Data Driven Control and Learning Systems Conference (DDCLS)*, May 2024.

- S. Guan, **Z. Zhuang**, H. Tao. “An optimal iterative learning control design framework for systems with varying trial lengths”. In *China Automation Congress (CAC)*, October 2021.
- Y. Huang, **Z. Zhuang**, H. Tao, Y. Chen. “Optimal iterative learning control of quantized signals based on encoding-decoding method”. In *IEEE 10th Data Driven Control and Learning Systems Conference (DDCLS)*, May 2021.

## Submitted Journal Papers

- **Z. Zhuang**, M. van Meer, H. Tao, T. Oomen. “Constraint-aware ILC: A computationally efficient approach via alternating projections”. Submitted to *IEEE Transactions on Control System Technology*.
- **Z. Zhuang**, C. Zhou, L. Gao, H. Tao, Y. Chen, W. Paszke. “Minimum-energy iterative learning control for multi-agent systems with optimal intermediate-point allocation”. Submitted to *Journal of the Franklin Institute*.

## Non-peer-reviewed Presentations and Posters

- **Z. Zhuang**, M. van Meer, H. Tao, D. Zhou, T. Oomen. “Alternating projection-based optimal ILC for linear systems with non-uniform trial lengths under input constraints”. Oral presentation at the *42nd Benelux meeting on Systems and Control*, March 2023.

## Research Projects

- Postgraduate Research & Practice Innovation Program of Jiangsu Province Management  
Grant number: KYCX22\_2306 2022-05-25 to 2024-09  
**Title:** Research on iterative learning control for batch process with nonidentical trial lengths using alternating projections between multiple sets.
- National Natural Science Foundation of China Participation  
Grant number: 62361136585 2024-01-01 to 2026-12-31  
**Title:** Real-time data driven control and performance optimization for complex nonlinear batch manufacturing systems.