Zhihe Zhuang

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Research interests: learning control, constrained optimization, data-driven control, reinforcement learning.

Personal Page · **ResearchGate** · **Google Scholar** · **LinkedIn**

Professional Experience

Jiangnan University, Wuxi, China — Since 2025.07
School of Internet of Things Engineering — Lecturer

Jiangnan University, Wuxi, China — 2019.09 – 2025.06
Ph.D. student in Control Science and Engineering — **Supervisor:** Prof. Hongfeng Tao

Eindhoven University of Technology, Eindhoven, the Netherlands — 2022.12 – 2023.12
Ph.D. visiting student in Mechanical Engineering (ME) — **Supervisor:** Prof. Tom Oomen

Jiangnan University, Wuxi, China — 2015.09 – 2019.06
B.Eng. student in Automation

Research

Submitted Journal Papers

- Z. Zhuang, M. van Meer, H. Tao, T. Oomen."Constraint-aware ILC: A computationally efficient approach via alternating projections". *IEEE Transactions on Control System Technology.*
- Z. Zhuang, R.A. González, H. Tao, W. Paszke, T. Oomen. "Data-enabled iterative learning control: A zero-sum game design for varying time-scale tasks". *Automatica.*

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.

- L. Gao, **Z. Zhuang**, H. Tao, Y. Chen, V. Stojanovic, W. Paszke. "A decentralized optimal iterative learning control approach with efficient computation for collaborative tracking". *International Journal of Robust and Nonlinear Control*, 2025.

Peer-reviewed Conference Publications

- **Z. Zhuang**, M. van Meer, H. Tao, T. Oomen, W. Paszke, T. Liu, E. Rogers. "Iterative learning control for closed-loop systems with actuator saturation using alternating projection". In *IEEE 10th Data Driven Control and Learning Systems Conference (DDCLS)*, May 2025.
- 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.

Non-peer-reviewed Presentations and Posters

- **Z. Zhuang**, Rodrigo A. Gonzalez, Hongfeng Tao, Wojciech Paszke, and Tom Oomen. "Data-enabled iterative learning control: A zero-sum game design for varying time-scale tasks". Keynote talk at *2025 China-Poland-UK International Workshop on Data-Driven Control*, Wuxi, China, May 10, 2025.
- **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*, Elspeet, the Netherlands, March 21, 2023.

Research Projects

- Postgraduate Research & Practice Innovation Program of Jiangsu Province — Management
  Grant number: KYCX22_2306 — 2022-05 to 2024-09
  Title: Research on iterative learning control for repetitive systems 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.

Journal Review

- Automatica
- ISA Transactions
- Engineering Applications of Artificial Intelligence
- Systems Science & Control Engineering

Conference Review

- IEEE Data Driven Control and Learning Systems Conference (DDCLS)
- IEEE/ASME Conference on Mechatronic, Embedded Systems and Applications (MESA)