




# ZHENGMENG ZHAI

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## Education

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### Southwest Jiaotong University

*Bachelor of Electronics Information Science and Technology*

Sep. 2015 – May 2019

Chengdu, Sichuan, China

### Arizona State University

*Ph.D. of Electrical, Computer and Energy Engineering*

Sep. 2021 – May 2025

Arizona, USA

## Publications

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- [6] **Zheng-Meng Zhai**, Mohammadamin Moradi, Ling-Wei Kong, Bryan Glaz, Mulugeta Haile, and Ying-Cheng Lai. “Model-free tracking control of complex dynamical trajectories with machine learning,” *Nature Communications*, **14**, 5968, 1-11 (2023). Highlighted as a Featured Article
- [5] **Zheng-Meng Zhai**, Ling-Wei Kong, and Ying-Cheng Lai. “Emergence of a resonance in machine learning,” *Physical Review Research*, **5**, 033127, 1-12 (2023).
- [4] **Zheng-Meng Zhai**, Mohammadamin Moradi, Ling-Wei Kong, and Ying-Cheng Lai. “Detecting Weak Physical Signal from Noise: A Machine-Learning Approach with Applications to Magnetic-Anomaly-Guided Navigation,” *Physical Review Applied*, **19**, 034030, 1-18 (2023).
- [3] Yong-Shang Long, **Zheng-Meng Zhai**, Ming Tang, Ying Liu, and Ying-Cheng Lai. “Structural position vectors and symmetries in complex networks,” *Chaos*, **32**, 093132, 1-24 (2022). Featured in Scilight
- [2] Yong-Shang Long, **Zheng-Meng Zhai**, Ming Tang, and Ying-Cheng Lai. “Metamorphoses and explosively remote synchronization in dynamical networks,” *Chaos*, **32**, 043110, 1-10 (2022).
- [1] **Zheng-Meng Zhai**, Yong-Shang Long, Ming Tang, Zonghua Liu, and Ying-Cheng Lai. “Optimal inference of the start of COVID-19,” *Physical Review Research*, **3**, 013155, 1-12 (2021).

## Technical Skills

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**Languages:** Python, Matlab, Java, C, R, Mathematica

**Developer Tools:** VS Code, Eclipse

**Technologies/Frameworks:** Linux, GitHub, Tensorflow, Keras, Pytorch

**Research Interests:** Machine learning (e.g., Transformer, RNN, VAE), Time series forecasting, Nonlinear dynamics and chaos, Reservoir computing, Nonlinear control, Complex networks, Power grids

## Service

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**Journal Reviewer:** IEEE Access, Plos One

## News and Media Coverage

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- Helping robots follow a new path, *Nanowerk* (Oct. 2023)
- Helping robots follow a new path, *ASU News* (Oct. 2023)
- Machine Learning Research Allows Robots to Navigate Complex Trajectories, *Fagen Wasanni Technologies* (Oct. 2023)

- Nat. Commun. Express: Model-free tracking control of complex dynamic trajectories based on machine learning, *Jizhi Clue* (Oct. 2023)
- Nat. Commun. Express: Model-free tracking control of complex dynamic trajectories based on machine learning, *The Paper* (Oct. 2023)
- Nature Communications: Model-free tracking control of complex dynamic trajectories based on machine learning, *AI Energy* (Sept. 2023)
- ‘Time Zero’ tool adds dimension to COVID-19 arrival, spread and mutations, *ASU News* (Feb. 2021)

## References

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- Prof. Ying-Cheng Lai, Arizona State University, Advisor.