Zhengmeng Zhai

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Education

Southwest Jiaotong University **Sep. 2015 – May 2019**
Bachelor of Electronice Information Science and Technology *Chengdu, Sichuan, China*

East China Normal University **Sep. 2019 – June 2022**
Master of Theoretical Physics *Shanghai, China*

Arizona State University **Sep. 2021 – Now**
Ph.D. of Electrical, Computer and Energy Engineering *Arizona, USA*

Publications

[8] Mohammadamin Moradi, **Zheng-Meng Zhai**,Aaron Nielsen, and Ying-Cheng Lai. "Random forests for detecting weak signals and extracting physical information: A case study of magnetic navigation," *APL Machine Learning*, **2**, 016118, (2024).

[7] **Zheng-Meng Zhai**, Mohammadamin Moradi, Bryan Glaz, Mulugeta Haile, and Ying-Cheng Lai. "Machine-learning parameter tracking with partial state observation," *Physical Review Research*, **6**, 013196, 1-19 (2024).

[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 andsymmetries 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

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 foresting, Nonlinear dynamics and chaos, Reservoir computing, Nonlinear control, Complex networks, Power grids

Service

Journal Reviewer: Physical Review X, Physical Review X Energy, IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Artificial Intelligence, Information Fusion, Information Sciences, IEEE Access, Plos One

News and Media Coverage

- 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

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