

Tao Wen

Decision and Cognitive Sciences Research Centre, The University of Manchester

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EDUCATION

PhD with an integrated MSc in *Data Analytics and Society* (fully funded by **ESRC Centre for Doctoral Training in Data Analytics and Society**) 9/2021 – 6/2025 (Expected)

Advisor: Prof. Yu-wang Chen and Associate Prof. Tahir Abbas Syed
University of Manchester, Manchester, UK

M. Eng. (Research) in *Science, Mathematics & Technology* (fully funded by **SUTD Fellowship**) 9/2020 – 9/2021

Advisor: Associate Prof. Kang Hao Cheong
Singapore University of Technology and Design, Singapore

B. S. in *System Engineering (Control Science and Engineering)* 9/2015 – 6/2019

Advisor: Prof. Yong Deng and Prof. Wen Jiang
Northwestern Polytechnical University, Xi'an, China

RESEARCH INTERESTS

- AI & Machine Learning
- Data Analytics on Misinformation
- Game Theory
- Network Science
- Complex System
- Decision Analysis

FELLOWSHIP AND AWARDS

- The Chinese Government Award for Outstanding Self-financed Students Abroad 2024
- **The Turing Scheme** (Support Placements for Postgraduate Researchers) 2024
- Conference Support Fund from the Department of Social Statistics 2024
- **Enrichment Scheme Placement Award** at The Alan Turing Institute 2023
- **Turing Exchange Fellowship** 2022
- Conference Support Fund from Decision and Cognitive Sciences Research Centre 2022
- Excellent Paper Award of International Interdisciplinary Forum on Smart Shipping and Green Future 2022
- China National Scholarship 2018

PUBLICATIONS (*: equal contributions)

See the full list in [Google Scholar](#) (citation: 1200+, h-index: 19)

- [1] **Tao Wen**, Rui Zheng, Ting Wu, Zeyi Liu, Mi Zhou, Tahir Abbas Syed, Darminder Ghataoura, Yu-wang Chen (2025). Formulating Opinion Dynamics from Belief Formation, Diffusion and Updating in Social Network Group Decision-Making: Towards Developing a Holistic Framework. In *European Journal of Operational Research*. [[Link](#)]
- [2] **Tao Wen**, Yu-wang Chen, Tahir Abbas Syed, Darminder Ghataoura (2025). Examining Communication Network Behaviors, Structure and Dynamics in an Organizational Hierarchy: A Social Network Analysis Approach. In *Information Processing & Management*. [[Link](#)]
- [3] **Tao Wen**, Yu-wang Chen, Renaud Lambiotte (2024). Collective Effect of Self-learning and Social Learning on Language Dynamics: A Naming Game Approach in Social Networks. In *Journal of the Royal Society Interface*. [[Link](#), [Code](#)]
- [4] **Tao Wen**, Jinde Cao, Kang Hao Cheong (2023). Gravity-based Community Vulnerability Evaluation Model in Social Networks: GBCVE. In *IEEE Transactions on Cybernetics*. [[Link](#)]
- [5] Kang Hao Cheong*, **Tao Wen***, Sean Benler, Jin Ming Koh, Eugene V. Koonin (2022). Alternating Lysis and Lysogeny is a Winning Strategy in Bacteriophages due to Parrondo's Paradox. In *Proceedings of the National Academy of Sciences*. [[Link](#), [Code](#)]
- [6] **Tao Wen**, Kang Hao Cheong, Joel Weijia Lai, Jin Ming Koh, Eugene V. Koonin (2022). Extending the Lifespan of Multicellular Organisms via Periodic and Stochastic Intercellular Competition. In *Physical Review Letters*. [[Link](#), [Code](#)]
- [7] **Tao Wen**, Qiuya Gao, Yu-wang Chen, Kang Hao Cheong (2022). Exploring the Vulnerability of Logistics Networks by Entropy: An Asia-Europe Maritime Transportation Network Case Study. In *Reliability Engineering & System Safety*. [[Link](#)]
- [8] **Tao Wen**, Kang Hao Cheong (2021). The Fractal Dimension of Complex Networks: A Review. In *Information Fusion* (ESI 1% Highly Cited Paper). [[Link](#), 150+ citations]
- [9] **Tao Wen**, Yong Deng (2020). The Vulnerability of Community Structure in Complex Networks: An Entropy Approach. In *Reliability Engineering & System Safety*. (ESI 1% Highly Cited Paper) [[Link](#)]

- [10] **Tao Wen**, Yong Deng (2020). Identification of Influencers in Complex Networks by Local Information Dimensionality. In *Information Sciences* (ESI 1% Highly Cited Paper). [[Link](#), 100+ citations]

Papers in the pipeline

- [1] **Tao Wen**, Yu-wang Chen, Jie Zhao, Changchun Pan, Tahir Abbas Syed, Kang Hao Cheong, Yong-Yeol Ahn. Early Identification of Information Propagation Sources through Generalized Bayesian Inference in Large-scale Social Networks. Under Review.
- [2] **Tao Wen**, Yu-wang Chen, Tahir Abbas Syed, Arijit De. Evaluating Disruption Risks at Chokepoints of the Maritime Transport Network to Support Re-Routing Decision-Making. Under Review.
- [3] **Tao Wen**, Yu-wang Chen. Human-Machine Collective Intelligence and Decision-Making under Uncertainty in Higher-Order Networks. Under Preparation.

RESEACH EXPERIENCE & COLLABORATION

- Data Analytics for Addressing Fake News and Deepfakes in Social Networks 9/2021 - Present
University of Manchester, Advisor: Prof. Yu-wang Chen and Associate Prof. Tahir Abbas Syed
- Temporal Dynamics of Belief Networks 7/2024 - 8/2024
Indiana University Bloomington (Funded by [The Turing Scheme](#)), Advisor: Prof. Yong-Yeol Ahn
- Data-driven Modelling and Analysis of Opinion and Decision Dynamics 1/2024 - 7/2024
The Alan Turing Institute ([2023 Enrichment Scheme](#))
- Quantifying the Impact of Social Influence on Language Dynamics 2/2023 - 1/2024
University of Oxford (Funded by [Turing Exchange Fellowship](#)), Advisor: Prof. Renaud Lambiotte

INVITED TALKS & PRESENTATIONS

- Decision and Cognitive Science Research Centre PhD Workshop, Manchester, UK. 12/2024
- Conference on Complex Systems 2024, Exeter, UK. 9/2024
- International School and Conference on Network Science (NetSci) 2024, Québec City, Canada. 6/2024
- Networks and Time II, Northeastern University London, London, UK. 4/2024
- Advances in Data Science and AI Conference, Manchester, UK. 6/2023
- Brown Bag Seminar on Fintech & Digital Transformation, UoM, Manchester, UK. 5/2023
- 26th International Conference on Multiple Criteria Decision Making, Portsmouth, UK. 6/2022
- Oberseminar Dynamics Seminar, Technical University of Munich, Online. 5/2021

TEACHING & SUPERVISION

- Teaching Assistant
 - AI and Machine Learning: Business Application, Manchester Metropolitan University. Spring 2024
 - Programming in Python for Business Analytics, University of Manchester. Fall 2022
 - Modelling Space and Systems, Singapore University of Technology and Design. Spring 2021
- MSc Dissertation Co-supervision
 - Vania Faustanta, Dhruv Nilesh Kapadia, Frederick Ching Fung Ling (MS student) 2024
 - Tony Mathew Abraham (MS student @ UoM → JLR, [Dean's Award](#)) 2023
 - Elena Narang (MS student @ UoM → IOM, UN Migration) 2023

SERVICES

- Assist in organizing Decision and Cognitive Sciences Research Centre seminars.
- **Special Issue Editor** on *Mathematics* (Data-driven Decision Making: Models, Methods and Applications).
- **Session Chair**
 - 2024: International Conference on Automation and Computing
- **Journal Reviewer**
 - 2024: *Humanities & Social Sciences Communications*, *IT&P*, *European Physical Journal B*
 - 2023: *IEEE TNNLS*, *IEEE TNSE*, *International Journal of Modern Physics C*
 - 2022: *Reliability Engineering & System Safety*, *Journal of Computational Science*
 - 2021: *IEEE TSIPN*, *Communications Physics*, *Chaos*, *Physica A*, *Scientific Reports*
- **Program Committee Member**
 - 2025: NeurIPS, ICML, ICLR, AISTATS, IJCNN, AOM Annual Meeting, NetSci
 - 2024: NeurIPS, NetSci, DASA