

Sichen Tao

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 [Google Scholar](#)  [ResearchGate \(Currently Inaccessible\)](#)  [Github](#)

Research Interest

- Design and applications of state-of-the-art deep learning technologies.
- Design and applications of state-of-the-art intelligent optimization methods.
- Developing explainable and efficient bio-inspired neural networks for both visual and general cognitive tasks.

Education

Doctor of Engineering [University of Toyama](#) **Toyama, Japan** 2022-2025

Course of Studies: Advanced Mathematics and Human Mechanisms (Artificial Intelligence Lab).

Doctoral thesis: "Development of Artificial Intelligence Systems for Data Analysis and Optimization Based on Brain-inspired and Evolutionary Intelligence".

Master of Engineering [University of Toyama](#) **Toyama, Japan** 2020-2022

Course of Studies: Intellectual Information Engineering (Artificial Intelligence Lab).

Master thesis: "A Novel Artificial Visual System for Motion Direction Detection in Grayscale Images".

Research Student [University of Toyama](#) **Toyama, Japan** 2019-2020

Course of Studies: Intellectual Information Engineering (Artificial Intelligence Lab).

Main Works: Theoretical Researches and Real-World Applications of State-of-the-Art Meta-Heuristic Optimizers.

Bachelor of Engineering [University of Shanghai for Science and Technology](#) **Shanghai, China** 2014-2018

Course of Studies: Mechanical Design, Manufacture, and Automation ([European Accreditation of Engineering Programmes, EUR-ACE®](#)).

Bachelor thesis: "Self-service System Design of Robot Intelligent Restaurant".

Research and Work Experience

Assistant Professor [Tohoku University](#) 10/2025 - present

- Affiliated with the [High Performance Computing Laboratory \(Takizawa Laboratory\)](#), [Cyberscience Center](#).

JST SPRING Researcher [Japan Science and Technology Agency](#) 04/2023 - 9/2025

- Researches are supported by [Japan Science and Technology Agency \(JST\) Support for Pioneering Research Initiated by the Next Generation \(SPRING\)](#).

Editor Assistant [Mathematics, MDPI](#) 03/2023 - 09/2025

- Assist each editor of the special issue "[Dynamics in Neural Networks](#)" with initial manuscript review, assigning reviewers, reactivating reviews, and making final decisions.

Editor Assistant [Frontiers in Neuroscience, Frontiers](#) 05/2023 - 1/2025

- Assist each editor of the special issue "[Artificial Systems Based on Human and Animal Natural Vision in Image and Video](#)" with initial manuscript review, assigning reviewers, reactivating reviews, and making final decisions.

Research Assistant [AI Laboratory, University of Toyama](#) 10/2022 - present

- Assist the professor in leading master's and PhD students to advance research projects, reviewing paper, and holding the seminar.

JST Fellowship Researcher [Japan Science and Technology Agency](#) 10/2022 - 03/2024

- Researches are supported by [Japan Science and Technology Agency \(JST\) through the Establishment of University Fellowships towards the Creation of Science Technology Innovation](#) and [University of Toyama through Fellowships to Create Science, Technology and Innovation](#).

Research Visit [Department of Physiology, University of Tokyo](#) 12/2022 - 12/2022

- Discuss the potential research and collaboration of our proposed motion direction and orientation perception neural modeling in explaining and modeling the mammalian physiological visual system.

Teach Assistant

AI Laboratory, University of Toyama 10/2020 - 9/2022

- Assist the professor in teaching and give research-related lectures to undergraduates.

Publications & Presentations (50 Items)

PEER-REVIEWED JOURNAL PUBLICATIONS.....

*Corresponding Author

- 35) R. Zhao, J. Betz, **S. Tao**, Y. Zhang, P. Li, "Neurophysiological Knowledge Driven Artificial Visual System Neural Network for Explainable Motion Direction Detection", Knowledge-Based Systems (IF=7.6, JCR Q1), 2025, Submitted.
- 34) R. Zhao, **S. Tao**, P. Li, "Adaptive product family formation: A medoid-based fuzzy clustering method for mixed products assembly in the shared human-robot collaborative system", Applied Soft Computing (IF=6.6, JCR Q1), Under Review.
- 33) **S. Tao (First Author)**, R. Zhao, Z. Lei, M. Omura, S. Gao, "Level-Direction Guided Hierarchical Genetic Learning Particle Swarm Optimization for Wind Farm Layout Optimization Considering Landowners Behavior", Engineering Applications of Artificial Intelligence (IF=8.0, JCR Q1), Under Review.
- 32) **S. Tao* (Corresponding Author & First Author)**, R. Zhao, H. Yang, J. Wang, "An Artificial Visual System Constructed by Fully Modeled Retinal Direction-selective Networks on Detecting Motion Direction in Color Images", Information Sciences (IF=6.8, JCR Q1), Submitted.
- 31) **S. Tao* (Corresponding Author & First Author)**, Y. Yang, R. Zhao, Z. Lei, S. Gao, "Unleashing the Inherent Potential of Differential Evolution Using Nonlinear Population Size Reduction for Wind Farm Layout Optimization", IEEE Access (IF=3.4, JCR Q1), Under Review.
- 30) G. Luo, X. Wang, W. Zhao, **S. Tao* (Corresponding Author)**, Z. Tang, "ReLU Neural Networks and its Training," Mathematics (IF=2.3, JCR Q1), Manuscript ID: mathematics-3975680, Under review; Submitted Oct. 24, 2025.
- 29) Y. Wang, Y. Yang, **S. Tao* (Corresponding Author)**, L. Qi, H. Shen, "A Reinforcement Learning-Assisted Fractional-Order Differential Evolution for Solving Wind Farm Layout Optimization Problems," Mathematics (IF=2.3, JCR Q1), vol. 13, no. 18, 2935, Sep. 10, 2025.
- 28) Q. Zhang, W. Chen, S. Pang, **S. Tao**, C. Li, X. Yin, "GPU/CUDA-Accelerated Gradient Growth Optimizer for Efficient Complex Numerical Global Optimization," Parallel Computing (IF=2.1, JCR Q2), vol. 126, 103160, Nov. 2025.
- 27) R. Zhao, **S. Tao**, P. Li, "Human-centric Assembly Planning Framework for Human-robot Collaborative Systems with Efficient Reinforcement Self-learning Multi-objective Evolutionary Optimizer", Advanced Engineering Informatics (IF=8.0, JCR Q1), vol. 67, no. 103508, Sep. 2025, doi: 10.1016/j.aei.2025.103508.
- 26) S. Liu, **S. Tao**, K. Wang, Z. Lei, and S. Gao, "Improved spherical search algorithm with memory-based dynamic population for optimization", The Journal of Supercomputing (IF=2.5, JCR Q2), vol. 81, no. 726, Apr. 2025, doi: 10.1007/s11227-025-07095-z.
- 25) **S. Tao* (Corresponding Author & First Author)**, S. Liu, S. Ohta, R. Zhao, Y. Yang, "A Novel Detection and Replacement Based Order-Operator for Differential Evolution in Solving Complex Bound Constrained Optimization Problems", Mathematics (IF=2.3, JCR Q1), Accepted, doi: 10.3390/math13091389.
- 24) S. Wang, **S. Tao (Co-first Author)**, Y. Zhu, Q. Gu, P. Ni, W. Zhang, C. Wu, W. Hu, M. Diao, "Development of an efficient AI-powered model based on easily obtainable patient examination features to predict mortality risk in VA-ECMO patients: A multicenter cohort study", Scientific Reports (IF=3.8, JCR Q1), vol. 15, no. 10362, Mar. 2025, doi: 10.1038/s41598-025-94734-3.
- 23) Y. Hua, **S. Tao* (Corresponding Author)**, Y. Todo, T. Chen, Z. Qiu, and Z. Tang, "A Biologically Inspired Model for Detecting Object Motion Direction in Stereoscopic Vision", Symmetry (IF=2.2, JCR Q2), vol. 17, no. 2, p. 162, Jan. 2025, doi: 10.3390/sym17020162.
- 22) B. Li, Y. Todo, **S. Tao* (Corresponding Author)**, C. Tang, and Y. Wang, "Enhancing CNN Robustness Against Image Noise via Artificial Visual System", Mathematics (IF=2.3, JCR Q1), vol. 13, no. 1, p. 142, Jan. 2025, doi: 10.3390/math13010142.

- 21) **S. Tao* (Corresponding Author & First Author)**, S. Liu, R. Zhao, Y. Yang, H. Todo, and H. Yang, "A State-of-the-art Fractional Order Driven Differential Evolution for Wind Farm Layout Optimization", Mathematics (IF=2.3, JCR Q1), vol. 13, no. 2, p. 282, Jan. 2025, doi: 10.3390/math13020282.
- 20) R. Zhao, **S. Tao**, and P. Li, "Safety-efficiency integrated assembly: The next-stage adaptive task allocation and planning framework for human-robot collaboration", Robotics and Computer-Integrated Manufacturing (IF=9.1, JCR Q1), vol. 94, Aug. 2025, p. 102942, doi: 10.1016/j.rcim.2024.102942.
- 19) **S. Tao* (Corresponding Author & First Author)**, R. Zhao, Y. Yang, H. Todo, Z. Tang, Y. Todo, "Artificial Visual Network with Fully Modeled Retinal Direction-Selective Neural Pathway for Motion Direction Detection in Grayscale Scenes", Symmetry (IF=2.2, JCR Q2), vol. 16, no. 12, p. 1592, Nov. 2024, doi: 10.3390/sym16121592.
- 18) **S. Tao* (Corresponding Author & First Author)**, Y. Yang, R. Zhao, H. Todo, Z. Tang, "Competitive Elimination Improved Differential Evolution for Wind Farm Layout Optimization Problems", Mathematics (IF=2.3, JCR Q1), vol. 12, no. 23, p. 3762, Nov. 2024, doi: 10.3390/math12233762.
- 17) Y. Yang, **S. Tao (Co-first Author)**, H. Li, H. Yang, Z. Tang, "A Multi-local Search-based SHADE for wind farm layout optimization", Electronics (IF=2.6, JCR Q2), vol. 13, no. 16, p. 3196, Aug. 2024, doi: 10.3390/electronics13163196.
- 16) Y. Hua, Y. Todo, **S. Tao**, Z. Tang, T. Chen, Z. Qiu, "Bio-Inspired Computational Model for Direction and Speed Detection", Knowledge-Based Systems (IF=7.2, JCR Q1), vol. 300, p. 112195, Sep. 2024, doi: 10.1016/j.knosys.2024.112195.
- 15) **S. Tao (First Author)**, Z. Zhang, R. Zhao, Z. Tang, and Y. Todo, "A Novel Artificial Visual System for Motion Direction Detection in Color Images," Knowledge-Based Systems (IF=8.8, JCR Q1), vol. 295, p. 111816, Jul. 2024, doi: 10.1016/j.knosys.2024.111816.
- 14) **S. Tao (First Author)**, K. Wang, T. Jin, Z. Wu, Z. Lei, and S. Gao, "Spherical Search Algorithm with Memory-Guided Population Stage-Wise Control for Bound-Constrained Global Optimization Problems," Applied Soft Computing (IF=8.7, JCR Q1), vol. 161, p. 111677, Aug. 2024, doi: 10.1016/j.asoc.2024.111677.
- 13) Y. Yang, **S. Tao**, S. Dong, M. Nomura, and Z. Tang, "An Adaptive Dimension Weighting Spherical Evolution to Solve Continuous Optimization Problems," Mathematics, vol. 11, no. 17, p. 3733, Aug. 2023, doi: 10.3390/math11173733.
- 12) **S. Tao (First Author)**, X. Zhang, Y. Hua, Z. Tang, and Y. Todo, "A Novel Artificial Visual System for Motion Direction Detection with Completely Modeled Retinal Direction-Selective Pathway," Mathematics (IF=2.3, JCR Q1), vol. 11, no. 17, p. 3732, Aug. 2023, doi: 10.3390/math11173732.
- 11) Z. Tang, K. Wang, **S. Tao**, Y. Todo, R. L. Wang, and S. Gao, "Hierarchical Manta Ray Foraging Optimization with Weighted Fitness-Distance Balance Selection," International Journal of Computational Intelligence Systems, vol. 16, no. 114, Jul. 2023, doi: 10.1007/s44196-023-00289-4.
- 10) Y. Yang, **S. Tao**, H. Yang, Z. Yuan, and Z. Tang, "Dynamic Complex Network, Exploring Differential Evolution Algorithms from Another Perspective," Mathematics, vol. 11, no. 13, p. 2979, July 2023, doi: 10.3390/math11132979.
- 9) X. Zhang, **S. Tao**, Z. Tang, S. Zheng, and Y. Todo, "The Mechanism of Orientation Detection Based on Artificial Visual System for Greyscale Images," Mathematics, vol. 11, no. 12, p. 2715, Jun. 2023, doi: 10.3390/math11122715.
- 8) K. Wang, Y. Wang, **S. Tao**, Z. Cai, Z. Lei, and S. Gao, "Spherical Search Algorithm with Adaptive Population Control for Global Continuous Optimization Problems," Applied Soft Computing (IF=8.7, JCR Q1), vol. 132, p. 109845, Jan. 2023, doi: 10.1016/j.asoc.2022.109845.
- 7) Y. Hua, Y. Todo, Z. Tang, **S. Tao**, B. Li, and R. Inoue, "A Novel Bio-Inspired Motion Direction Detection Mechanism in Binary and Grayscale Background," Mathematics, vol. 10, no. 20, p. 3767, Oct. 2022, doi: 10.3390/math10203767.
- 6) **S. Tao (First Author)**, Y. Todo, Z. Tang, B. Li, Z. Zhang, and R. Inoue, "A Novel Artificial Visual System for Motion Direction Detection in Grayscale Images," Mathematics (IF=2.3, JCR Q1), vol. 10, no. 16, p. 2975, Aug. 2022, doi: 10.3390/math10162975.
- 5) Z. Tang, **S. Tao**, K. Wang, B. Lu, Y. Todo, and S. Gao, "Chaotic Wind Driven Optimization with Fitness Distance Balance Strategy," International Journal of Computational Intelligence Systems, vol. 15, no. 46, Jul. 2022, doi: 10.1007/s44196-022-00099-0.

- 4) X. Li, K. Wang, H. Yang, **S. Tao**, S. Feng, and S. Gao, "PAIDDE: A Permutation-Archive Information Directed Differential Evolution Algorithm," *IEEE Access*, vol. 10, pp. 50384-50402, May 2022, doi: 10.1109/ACCESS.2022.3173622.
- 3) H. Yang, **S. Tao**, Z. Zhang, Z. Cai, and S. Gao, "Spatial Information Sampling: Another Feedback Mechanism of Realising Adaptive Parameter Control in Meta-Heuristic Algorithms," *International Journal of Bio-Inspired Computation*, vol. 19, no. 1, pp. 48-58, Feb. 2022, doi: 10.1504/IJBIC.2022.120751.
- 2) K. Wang, **S. Tao**, R.-L. Wang, Y. Todo, and S. Gao, "Fitness-Distance Balance with Functional Weights: A New Selection Method for Evolutionary Algorithms," *IEICE Transactions on Information and Systems*, vol. E104-D, no. 10, pp. 1789-1792, Oct. 2021, doi: 10.1587/transinf.2021EDL8033.
- 1) S. Gao, K. Wang, **S. Tao (Clarivate 2021 ESI Highly Cited Paper, Top 1%)**, T. Jin, H. Dai, and J. Cheng, "A State-of-the-Art Differential Evolution Algorithm for Parameter Estimation of Solar Photovoltaic Models," *Energy Conversion and Management (IF=10.4, JCR Q1)*, vol. 230, p. 113784, Feb. 2021, doi: 10.1016/j.enconman.2020.113784.

PEER-REVIEWED CONFERENCE PUBLICATIONS.....

*Corresponding Author

- 14) R. Zhao, **S. Tao**, P. Li, "Human-robot Collaborative Resource and Task Planning for Assembly Systems with Self-learning Multi-objective Evolutionary Optimizer", *IEEE International Conference on Real-time Computing and Robotics (RCAR)*, Toyama, Japan, Jun. 1-6, 2025, doi:10.1109/RCAR65431.2025.11139773.
- 13) Y. Hua, Y. Todo, **S. Tao**, T. Chen, Z. Qiu, M. Dong, and Z. Tang, "A bio-inspired model for object motion direction and speed detection against colored backgrounds", in *Proceedings of the 5th International Conference on Computer Vision and Information Technology (CVIT 2024)*, vol. 13443, p. 1344307, Dec. 2024, Beijing, China, doi: 10.1117/12.3056633.
- 12) S. Sun, R. Zhao, C. Wang, Z. Tang, and **S. Tao* (Corresponding Author)**, "Improving the Music Harmony Search Using a Differential Exploration Phase for Solving Bound Constrained Optimization Problems," in *2024 IEEE 7th Information Technology, Networking, Electronic and Automation Control Conference (ITNEC)*, Sep. 2024, doi: 10.1109/ITNEC60942.2024.10733307.
- 11) S. Sun, R. Zhao, C. Wang, Z. Tang, and **S. Tao* (Corresponding Author)**, "A Differential Search Integrated Music Harmony Search Algorithm for Solving Bound Constrained Optimization Problems," in *SPML '24: Proceedings of the 2024 7th International Conference on Signal Processing and Machine Learning*, Oct. 2024, pp. 231-235, doi: 10.1145/3686490.3686524.
- 10) Y. Shoji, **S. Tao* (Corresponding Author)**, Y. Todo, Z. Tang, and R. Zhao, "A Novel Artificial Visual System with Fully Modeled Retinal Direction-selectivity Ganglion Cell Pathway for Motion Direction Detection in Grayscale Images," in *SPML '24: Proceedings of the 2024 7th International Conference on Signal Processing and Machine Learning*, Oct. 2024, pp. 212-215, doi: 10.1145/3686490.3686521.
- 9) R. Zhao, **S. Tao**, and P. Li, "An Optimal-Parent-Crossover Based Differential Evolution," in *2022 15th International Symposium on Computational Intelligence and Design (ISCID)*, Hangzhou, China, Dec. 2022, doi: 10.1109/IS-CID56505.2022.00068.
- 8) Q. Sui, **S. Tao**, L. Zhong, H. Yang, Z. Lei, and S. Gao, "An Immigration Strategy-Based Spherical Search Algorithm," in *2022 IEEE International Conference on Networking, Sensing and Control (ICNSC)*, Shanghai, China, Dec. 2022, doi: 10.1109/ICNSC55942.2022.10004149.
- 7) L. Zhong, **S. Tao**, Q. Sui, H. Yang, Z. Lei, and S. Gao, "A Population Resource Allocation-Based Adaptive Spherical Search Algorithm," in *2022 IEEE International Conference on Networking, Sensing and Control (ICNSC)*, Shanghai, China, Dec. 2022, doi: 10.1109/ICNSC55942.2022.10004116.
- 6) S. Dong, H. Yang, H. Li, B. Zhang, **S. Tao**, and S. Gao, "Hierarchical Water Wave Optimization," in *2022 IEEE International Conference on Networking, Sensing and Control (ICNSC)*, Shanghai, China, Dec. 2022, doi: 10.1109/ICNSC55942.2022.10004174.
- 5) **S. Tao* (Corresponding Author & First Author)**, R. Inoue, Y. Todo, and Z. Tang, "A Motion Direction Detective Mechanism for Greyscale Images," in *Proceedings of the 2021 4th International Conference on Signal Processing and Machine Learning (SPML)*, Aug. 2021, pp. 18-25, doi: 10.1145/3483207.3483211.

- 4) Z. Tang, K. Wang, J. Shi, **S. Tao**, Y. Todo, and S. Gao, "A Novel Optimization Algorithm Inherited from Gravitational and Spherical Search Dynamics," in 2020 13th International Symposium on Computational Intelligence and Design (ISCID), Hangzhou, China, Dec. 2020, doi: 10.1109/ISCID51228.2020.00027.
- 3) S. Liu, **S. Tao**, H. Yang, L. Jiang, Y. Todo, and S. Gao, "Using Grey Wolf Hunting Mechanism to Improve Spherical Search," in 2020 13th International Symposium on Computational Intelligence and Design (ISCID), Hangzhou, China, Dec. 2020, doi: 10.1109/ISCID51228.2020.00022.
- 2) K. Wang, **S. Tao**, Z. Zhang, Y. Todo, and S. Gao, "A Hybrid Spherical Search and Sine Cosine Algorithm," in 2020 12th International Conference on Intelligent Human-Machine Systems and Cybernetics (IHMSC), Hangzhou, China, Aug. 2020, doi: 10.1109/IHMSC49165.2020.00053.
- 1) **S. Tao (First Author)**, K. Wang, Z. Zhang, C. Lee, Y. Todo, and S. Gao, "A Hybrid Spherical Search and Moth-Flame Optimization Algorithm," in 2020 12th International Conference on Intelligent Human-Machine Systems and Cybernetics (IHMSC), Hangzhou, China, Aug. 2020, doi: 10.1109/IHMSC49165.2020.00054.

OTHER PUBLICATIONS

- 1) **S. Tao* (Corresponding Author & First Author & Silver Awardee in Competition on IEEE WCCI 2024)**, R. Zhao, K. Wang, and S. Gao, "An Efficient Reconstructed Differential Evolution Variant by Some of the Current State-of-the-Art Strategies for Solving Single Objective Bound Constrained Problems," arXiv, Apr. 25, 2024, doi: 10.48550/arXiv.2404.16280. ([Silver Awardee in IEEE CEC2024 Competition on Numerical Optimization under The IEEE World Congress on Computational Intelligence \(IEEE WCCI 2024\)](#))

Honors and Awards

06/2025

- (9) **Champion Awardee** in Competition on **Bound-constrained Single-Objective** Numerical Optimization Special Session in [The IEEE International Congress on Evolutionary Computation \(IEEE CEC 2025\)](#).
- (8) **Champion Awardee** in Competition on **Variable-Constrained Single-Objective** Numerical Optimization Special Session in [The IEEE International Congress on Evolutionary Computation \(IEEE CEC 2025\)](#).
- (7) **Champion Awardee** in Competition on **Bound-Constrained Multi-Objective** Numerical Optimization Special Session in [The IEEE International Congress on Evolutionary Computation \(IEEE CEC 2025\)](#).
- (6) **Champion Awardee** in Competition on **Variable-Constrained Multi-Objective** Numerical Optimization Special Session in [The IEEE International Congress on Evolutionary Computation \(IEEE CEC 2025\)](#).

06/2024

- (5) **Silver Awardee** in Competition on Numerical Optimization Special Session in [The IEEE World Congress on Computational Intelligence \(IEEE WCCI 2024\)](#).

04/2023

- (4) **Fellowship Awardee** of [Japan Science and Technology Agency \(JST\)](#) : [Support for Pioneering Research Initiated by the Next Generation \(SPRING\)](#).

10/2022

- (3) **Fellowship Awardee** of [Japan Science and Technology Agency \(JST\)](#) : [Establishment of University Fellowships towards the Creation of Science Technology Innovation](#).

10/2022

- (2) **Scholarship Awardee** of [Japan JGC-S Scholarship Foundation](#).

10/2021

- (1) **Scholarship Awardee** of [Japan ASAHI International Education Foundation](#).

Service to Academic Community

REVIEW ACTIVITIES.....

- [The IEEE World Congress on Computational Intelligence \(IEEE WCCI 2024\)](#)
- [IEEE Transactions on Evolutionary Computation \(IF: 11.7, JCR Q1\)](#)
- [IEEE Transactions on Systems, Man and Cybernetics: Systems \(IF: 8.7, JCR Q1\)](#)
- [IEEE Congress on Evolutionary Computation \(IEEE CEC 2024\)](#)
- [IEEE Congress on Evolutionary Computation \(IEEE CEC 2025\)](#)
- [IEEE International Conference on Systems, Man, and Cybernetics \(IEEE SMC 2024\)](#)
- [\(Elsevier\) Swarm and Evolutionary Computation \(IF: 8.2, JCR Q1\)](#)
- [\(Elsevier\) Engineering Applications of Artificial Intelligence \(IF: 8.0, JCR Q1\)](#)
- [\(Elsevier\) Applied Soft Computing \(IF=7.2, JCR Q1\)](#)
- [\(Elsevier\) Neural Networks \(IF=6.0, JCR Q1\)](#)
- [\(Cell Press\) Heliyon \(IF=4.0, JCR Q1\)](#)
- [\(Inder Science\) International Journal of Bio-Inspired Computation \(IF=1.9, JCR Q2\)](#)
- [The International Conference on Sensing and Imaging \(ICSI 2024\)](#)
- [\(Tech Science Press\) CMC-Computers Materials & Continua \(IF: 3.1, JCR Q3\)](#)
- [\(Springer\) International Journal of Computational Intelligence Systems \(IF: 2.9, JCR Q3\)](#)
- [\(Oxford University Press\) Journal of Computational Design and Engineering \(IF: 3.1, JCR Q1\)](#)
- [\(MDPI\) Mathematics \(IF=2.3, JCR Q1\)](#)
- [\(MDPI\) Applied Sciences \(IF=2.5, JCR Q1\)](#)
- [\(MDPI\) Biomimetics \(IF=3.4, JCR Q1\)](#)
- [\(MDPI\) Symmetry \(IF=2.2, JCR Q2\)](#)

Open-Source Projects and Tool Development

- Artificial Visual System for Motion Direction Detection Modeled by Retina Neuro-scientific Knowledge. [[Github](#)]
- Deep Neural Networks Coding for Motion Direction Detection. [[Github](#)]
- Wind Farm Layout Optimization Problem Benchmark Platform Coded by Matlab. [[Github](#)]
- Spherical Search Algorithm with Memory-guided Population Stage-Wise Control for Bound-Constrained Global Optimization Problem. [[Github](#)]
- Efficient Application of Level-Direction Guided Hierarchical Genetic Learning Particle Swarm Optimization for Wind Farm Layout Optimization Considering Landowners Behavior. [[Github](#)]
- Efficient Application of Potential-Unleashed High Performance Differential Evolution Algorithm for Wind Farm Layout Optimization. [[Github](#)]
- An Efficient Reconstructed Differential Evolution Variant by Some of the Current State-of-the-Art Strategies for CEC2024 Competition. [[Github](#)]
- An Efficient AI-powered Model Based on Easily Obtainable Patient Examination Features to Predict Mortality Risk in VA-ECMO Patients. [[Github](#)]

Competences

Computer skills

Programming: Python, Matlab, C++

AI-Frameworks: Pytorch, Tensorflow, Keras, OpenCV, Scikit-Learn

Operating systems: Windows, Linux, MacOS

Language

English: Basic

Japanese: Japanese-Language Proficiency Test (JLPT) N2 Certificate

Chinese: Native

Extracurricular Activities

Soccer, Running, Singing, Traveling, Computer Games

Sichen Tao

Toyama, Japan

28/October/2025