Ran Cheng

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Research Interests

I am particularly interested in computational intelligence based optimization, pattern recognition and data processing. Related research topics include deep learning, data-driven optimization, evolutionary multi-/many-objective optimization and decision making, swarm intelligence, etc.

Education

2013 – 2016: PhD in Computer Science, University of Surrey, UK

Thesis: *Nature Inspired Optimization of Large Problems*

Supervisor: Prof. Yaochu Jin (IEEE Fellow)

2010 - 2012: Postgraduate Student in Computer Science and Technology, Zhejiang University, China

Exempt from Admission Exam

2006 - 2010: B.Eng. in Computer Science and Technology, Northeastern University, China

Work

2020 - present: Tenured Associate Professor (Principal Investigator), Department of Computer Science and Engineering, Southern University of Science and Technology, China

2018 - 2020: Assistant Professor (Principal Investigator), Department of Computer Science and Engineering, Southern University of Science and Technology, China

2016 - 2018: Research Fellow, School of Computer Science, University of Birmingham, UK

PI: Prof. Xin Yao (IEEE Fellow)

2013 - 2015: Visiting Scholar, Honda Research Institute Europe (HRI-EU), Germany

PI: Prof. Markus Olhofer (Chief Scientist)

Teaching Experiences

Fall 2020: *Database Concepts* (CS307, in English), **Lecturer**, Southern University of Science and Technology

Fall 2018, Spring 2019, Fall 2019, Spring 2020, Spring 2021: *Data Structure and Algorithm Analysis* (CS203, in English), **Lecturer**, Southern University of Science and Technology

Fall 2018, Spring 2019, Fall 2019, Spring 2020: *Advanced Computer Science Experiments* (CS322, in English), **Lecturer**, Southern University of Science and Technology

Fall 2014, Spring 2015, Fall 2015: *Computational Intelligence* (COM3013, in English), Demonstrator, University of Surrey

Research Grants

2020 – 2024: Deep Learning Based Aerofoil Design, **Principal Investigator**, RMB 3,810,000, Ministry of Industry and Information Technology, China

2020 – 2022: Evolutionary Computation Based Deep Neural Architecture Search for Microchips, **Principal Investigator**, RMB 1,280,000, Huawei Hisilicon, China

2020 – 2023: Cell-Based Deep Neural Networks Architecture Search Using Evolutionary Multiobjective Optimization, **Principal Investigator**, RMB 230,000, National Science Foundation, China

2017 – 2022: Research and Development of Next-Generation Intelligent Logistics Platform, **Co-Investigator**, RMB 20,000,000, Shenzhen Peacock Plan, China

2018 – 2023: Research and Development of Restructurable Brain-like Computing System, **Co-Investigator**, RMB 20,000,000, Guangdong Innovation Grant, China

2017 – 2019: Adaptive Tools for Electromagnetics and Materials Modelling to Bridge the Gap between Design and Manufacturing (AOTOMAT), Key Member, GBP 935,611, EPSRC, UK

2012 – 2018: DAASE: Dynamic Adaptive Automated Software Engineering, Key Member, GBP 6,834,903, EPSRC, UK

2013 – 2017: Evolutionary Computation for Dynamic Optimisation in Network Environments, Key Member, GBP 512,325, EPSRC, UK

2013 – 2015: Surrogate-assisted Evolutionary Many-objective Optimisation, Key Member, GBP 116,733, Honda Research Institute Europe, UK

Honors and Awards

2021: Outstanding Paper Award, *IEEE Transactions on Evolutionary Computation*, IEEE, USA

2020: Outstanding Paper Award, *IEEE Computational Intelligence Magazine*, IEEE, USA

2019: Outstanding PhD Dissertation Award, *IEEE Computational Intelligence Society (CIS)*, IEEE, USA

2019: Best Paper Award, *The 14th International Conference on Bio-inspired Computing: Theories and Applications (BIC-TA 2019)*, China.

2018: Outstanding Paper Award, *IEEE Transactions on Evolutionary Computation*, IEEE, USA

2017: Best Student Paper Award, *11^{th} International Conference on Simulated Evolution and Learning (SEAL'2017)*, Shenzhen, China

2016: Chinese Government Award for Outstanding Self-financed Students Abroad (国家优秀自费留学生奖学金), China

2016: Valued Contribution Award, *2016 IEEE Symposium Series on Computational Intelligence (SSCI'2016)*, Greece

2015: First Prize of Doctoral Researcher Award, *Association of British Turkish Academics (ABTA)*, UK

2015: Vice-Chancellor's Award, *University of Surrey*, UK

Academic Supervision

Postdoctoral Supervision

2020 – now: Zhichao Lu (**Postdoctoral Research Fellow**). Department of Computer Science and Engineering, Southern University of Science and Technology.

Research Topic: *Neural Architecture Search*

SUSTech Presidential Outstanding Postdoctoral Award

2019 – 2021: Danial Yazdani (**Postdoctoral Research Fellow**). Department of Computer Science and Engineering, Southern University of Science and Technology.

Research Topic: *Evolutionary Dynamic Optimization Considering Robustness and Scalability*

SUSTech Presidential Outstanding Postdoctoral Award

2018 – 2020: Cheng He (**Postdoctoral Research Fellow**), Department of Computer Science and Engineering, Southern University of Science and Technology.

Research Topic: *Evolutionary Large-Scale Optimization*

SUSTech Presidential Outstanding Postdoctoral Award

PhD Supervision

2020 – now: Teng Wang (**PhD Student**). Department of Computer Science and Engineering, Southern University of Science and Technology.

Research Topic: *Neural Architecture Search*

2020 – now: Yiming Chen (**PhD Student**). Department of Computer Science and Engineering, Southern University of Science and Technology.

Research Topic: *Neural Architecture Search*

2019 – now: Hui Bai (**PhD Student**). Department of Computer Science and Engineering, Southern University of Science and Technology.

Research Topic: *Evolutionary Optimization for Modern Logistics*

Other Supervision

Research Assistants: Shihua Huang (2018 – now), Zhanglu Hou (2019 – 2020), Yuli Zhang (2018 – 2019), Jianqing Lin (2020 – now), Hao Tan (2020 – now), Qiangqiang Jiang (2020 – 2021). Department of Computer Science and Engineering, Southern University of Science and Technology.

MSc Stduents: Weituo Wang (2020 – 2023), Hanlin Long (2020 – 2023), Hu Zhang (2020 – 2023), Rui Zhang (2020 – 2023), Gengze Li (2018 – now). Department of Computer Science and Engineering, Southern University of Science and Technology.

Undergraduate Students: Ran Huo (2021), Xi Peng (2021), Tianci Zhang (2021), Hao Li (2021), Haoming Zhang (2021), Shengran Hu (2021), Liangyu Che (2020), Yiming Chen (2020), Yunfan Li (2020), Zhenyu Liang (2020), Yihui Tu (2020), Yuanhang Wu (2020), Bowen Zheng (2020), Xiaodian Zheng (2020), Hao Tan (2020). Department of Computer Science and Engineering, Southern University of Science and Technology.

Publications

Refereed Journal Articles (: Corresponding Author)*

1. Hao Tan, **Ran Cheng***, Shihua Huang, Cheng He, Changxiao Qiu, Fan Yang, and Ping Luo. RelativeNAS: Relative Neural Architecture Search via Slow-Fast Learning. *IEEE Transactions on Neural Networks and Learning Systems*, in Press.
2. Ye Tian, Langchun Si, Xingyi Zhang, **Ran Cheng**, Cheng He, Kay Chen Tan, and Yaochu Jin. Evolutionary Large-Scale Multi-Objective Optimization: A Survey. *ACM Computing Surveys*, in Press.
3. Cheng He, **Ran Cheng***, Ye Tian, Xingyi Zhang, Kay Chen Tan, and Yaochu Jin. Paired Offspring Generation for Constrained Large-Scale Multiobjective Optimization. *IEEE Transactions on Evolutionary Computation*, 25(3), 448-462, 2021.
4. Linqiang Pan, Lianghao Li, **Ran Cheng**, Cheng He, and Kay Chen Tan. Manifold Learning Inspired Mating Restriction for Evolutionary Multi-Objective Optimization with Complicated Pareto Sets. *IEEE Transactions on Cybernetics*, 51(6), 3325-3337, 2021.
5. Cheng He, Shihua Huang, **Ran Cheng***, Kay Chen Tan, and Yaochu Jin. Evolutionary Multiobjective Optimization Driven by Generative Adversarial Networks (GANs). *IEEE Transactions on Cybernetics*, 51(6), 3129-3142, 2021.
6. Huangke Chen, **Ran Cheng***, Witold Pedrycz, and Yaochu Jin. Solving Many-objective Optimization Problems via Multistage Evolutionary Search. *IEEE Transactions on Systems, Man and Cybernetics: Systems*, 51(6), 3552-3564, 2021.
7. Yansen Su, Kefei Zhou, Xingyi Zhang, **Ran Cheng**, and Chunhou Zheng. A Parallel Multi-objective Evolutionary Algorithm for Community Detection in Large-scale Complex Networks. *Information Sciences*, 576, 374-392, 2021.
8. Cheng He, Hao Tan, Shihua Huang, and **Ran Cheng***. Efficient Evolutionary Neural Architecture Search by Modular Inheritable Crossover. *Swarm and Evolutionary Computation*, in Press.
9. Jianqing Lin, Cheng He, and **Ran Cheng***. Adaptive Dropout for High-dimensional Expensive Multiobjective Optimization. *Complex & Intelligent Systems*, in Press.

10. Jing Wang, Runze Li, Cheng He, Haixin Chen, **Ran Cheng**, Chen Zhai, and Miao Zhang. An Inverse Design Method for Supercritical Airfoil based on Conditional Generative Models. *Chinese Journal of Aeronautics*,in Press.
11. Danial Yazdani, **Ran Cheng***, Donya Yazdani, Jurgen Branke, Yaochu Jin, and Xin Yao. A Survey of Evolutionary Continuous Dynamic Optimization Over Two Decades - Part A. *IEEE Transactions on Evolutionary Computation*, 25(4), 609-629, 2021.
12. Danial Yazdani, **Ran Cheng***, Donya Yazdani, Jurgen Branke, Yaochu Jin, and Xin Yao. A Survey of Evolutionary Continuous Dynamic Optimization Over Two Decades - Part B. *IEEE Transactions on Evolutionary Computation*, 25(4), 630-650, 2021.
13. Haiping Ma, Haoyu Wei, Ye Tian, **Ran Cheng**, and Xingyi Zhang. A Multi-stage Evolutionary Algorithm for Multi-objective Optimization with Complex Constraints. *Information Sciences*, 25(2), 371-385, 2021.
14. Jinjin Xu, Wenli Du, Yaochu Jin, Wangli He, and **Ran Cheng**. Ternary Compression for Communication-Efficient Federated Learning. *IEEE Transactions on Neural Networks and Learning Systems*, in Press.
15. Haoyu Zhang, Yaochu Jin, **Ran Cheng**, and Kuangrong Hao. Efficient Evolutionary Search of Attention Convolutional Networks via Sampled Training and Node Inheritance. *IEEE Transactions on Evolutionary Computation*, in Press.
16. Danial Yazdani, **Ran Cheng***, Cheng He, and Jurgen Branke. Adaptive Control of Sub-Populations in Evolutionary Dynamic Optimization. *IEEE Transactions on Cybernetics*, in Press.
17. Danial Yazdani, Nabi Omidvar, **Ran Cheng***, Juergen Branke, Trung Thanh Nguyen, and Xin Yao. Benchmarking Continuous Dynamic Optimization: Survey and Generalized Test Suite. *IEEE Transactions on Cybernetics*, in Press.
18. Yanguo Kong*, Xiangyi Kong*, Cheng He, Changsong Liu, Liting Wang, Lijuan Su, Jun Gao, Qi Guo, and **Ran Cheng***. Constructing an Automatic Diagnosis and Severity-Classification Model for Acromegaly Using Facial Photographs by Deep Learning. *Journal of Hematology & Oncology*, in Press.
19. Cheng He, **Ran Cheng***, and Danial Yazdani. Adaptive Offspring Generation for Evolutionary Large-Scale Multiobjective Optimization. *IEEE Transactions on Systems, Man and Cybernetics: Systems*, in Press.
20. Linqiang Pan, Wenting Xu, Lianghao Li, Cheng He*, and **Ran Cheng***. Adaptive Simulated Binary Crossover for Rotated Multi-Objective Optimization. *Swarm and Evolutionary Computation*, 60: 100759, 2021.
21. Zhanglu Hou, Cheng He, and **Ran Cheng***. Reformulating Preferences into Constraints for Evolutionary Multi- and Many-Objective Optimization. *Information Sciences*, 541, 1-15, 2020.
22. Cheng He, **Ran Cheng***, Chuanji Zhang, Ye Tian, Qin Chen, and Xin Yao. Evolutionary Large-Scale Multiobjective Optimization for Ratio Error Estimation of Voltage Transformers. *IEEE Transactions on Evolutionary Computation*, 24(5), 868-881, 2020.
23. Ye Tian, Cheng He, **Ran Cheng**, and Xingyi Zhang. A Multi-Stage Evolutionary Algorithm for Better Diversity Preservation in Multi-Objective Optimization. *IEEE Transactions on Systems, Man and Cybernetics: Systems*, in Press.
24. Ye Tian, Xingyi Zhang, **Ran Cheng***, Cheng He, and Yaochu Jin. Guiding Evolutionary Multiobjective Optimization with Generic Front Modeling. *IEEE Transactions on Cybernetics*, 50 (3), 1106-1119, 2020.

25. Huangke Chen, **Ran Cheng***, Jinming Wen, Haifeng Li, and Jian Weng. Solving Large-Scale Many-objective Optimization Problems by Covariance Matrix Adaptation Evolution Strategy with Scalable Small Subpopulations. *Information Sciences*, 509, 457-469, 2020.
26. Ye Tian, **Ran Cheng**, Xingyi Zhang, Miqing Li, and Yaochu Jin. Diversity Assessment of Multi-Objective Evolutionary Algorithms: Performance Metric and Benchmark Problems [Research Frontier]. *IEEE Computational Intelligence Magazine*, 14 (3), 61-74, 2019.
27. Cheng He, Lianghao Li, Ye Tian, Xingyi Zhang, **Ran Cheng***, Yaochu Jin, and Xin Yao. Accelerating Large-scale Multi-objective Optimization via Problem Reformulation. *IEEE Transactions on Evolutionary Computation*, 23 (6), 949-961, 2019.
28. Murillo G Carneiro, **Ran Cheng**, Liang Zhao, and Yaochu Jin. Particle swarm optimization for network-based data classification. *Neural Networks*, 110:243-255, 2019.
29. **Ran Cheng**, MN Omidvar, AH Gandomi, B Sendhoff, S Menzel, and Xin Yao. Solving Incremental Optimization Problems via Cooperative Coevolution. *IEEE Transactions on Evolutionary Computation*, 23 (5), 762-775, 2018.
30. Ye Tian, **Ran Cheng**, Xingyi Zhang, Yansen Su, and Yaochu Jin. A Strengthened Dominance Relation Considering Convergence and Diversity for Evolutionary Many-objective Optimization. *IEEE Transactions on Evolutionary Computation*, 23 (2), 331-345, 2018.
31. **Ran Cheng***, Cheng He, Yaochu Jin, and Xin Yao. Model-based evolutionary algorithms: a short survey. *Complex & Intelligent Systems*, 4 (4), 283-292, 2018.
32. Xingyi Zhang, Xiutao Zheng, **Ran Cheng***, Jianfeng Qiu, and Yaochu Jin. A competitive mechanism based multi-objective particle swarm optimizer with fast convergence. *Information Sciences*, 427, 63-76, 2018.
33. Fei Li, **Ran Cheng***, Jianchang Liu, and Yaochu Jin. A Two-Stage R2 Indicator Based Evolutionary Algorithm for Many-Objective Optimization. *Applied Soft Computing*, 67, 245-260, 2018.
34. Xia Zhang, Bei Ding, **Ran Cheng***, Sebastian C. Dixon, and Yao Lu*. Computational Intelligence-Assisted Understanding of Nature-Inspired Superhydrophobic Behavior. *Advanced Science*, 5 (1), 1700520, 2018.
35. Shenkai Gu, **Ran Cheng**, and Yaochu Jin. Feature selection for high-dimensional classification using a competitive swarm optimizer. *Soft Computing*, 22 (3), 811-822, 2018.
36. Ye Tian, **Ran Cheng**, Xingyi Zhang, and Yaochu Jin. PlatEMO: A MATLAB platform for evolutionary multi-objective optimization [educational forum]. *IEEE Computational Intelligence Magazine*, 12 (4), 73-87, 2017.
37. **Ran Cheng**, Tobias Rodemann, Michael Fischer, Maikus Olhofer, and Yaochu Jin. Evolutionary many-objective optimization of hybrid electric vehicle control: from general optimization to preference articulation. *IEEE Transactions on Emerging Topics in Computational Intelligence*, 1 (2), 97-111, 2017.
38. Chaoli Sun, Yaochu Jin, **Ran Cheng**, Jinliang Ding, and Jianchao Zeng. Surrogate-assisted cooperative swarm optimization of high-dimensional expensive problems. *IEEE Transactions on Evolutionary Computation*, 21 (4), 644-660, 2017.
39. **Ran Cheng**, Miqing Li, Ye Tian, Xingyi Zhang, Shengxiang Yang, Yaochu Jin, and Xin Yao. A benchmark test suite for evolutionary many-objective optimization. *Complex & Intelligent Systems*, 3 (1), 67-81, 2017.

40. Ye Tian, **Ran Cheng**, Xingyi Zhang, Fan Cheng, and Yaochu Jin. An indicator based multi-objective evolutionary algorithm with reference point adaptation for better versatility. *IEEE Transactions on Evolutionary Computation*, 22 (4), 609-622, 2017.
41. **Ran Cheng**, Miqing Li, Ke Li, and Xin Yao. Evolutionary Multiobjective Optimization Based Multimodal Optimization: Fitness Landscape Approximation and Peak Detection. *IEEE Transactions on Evolutionary Computation*, 22 (5), 692-706, 2017.
42. **Ran Cheng**, Yaochu Jin, Markus Olhofer, and Bernhard Sendhoff. Test Problems for Large-Scale Multiobjective and Many-Objective Optimization. *IEEE Transactions on Cybernetics*, 47 (12), 4108-4121, 2017.
43. Xingyi Zhang, Ye Tian, **Ran Cheng***, and Yaochu Jin. A Decision Variable Clustering-Based Evolutionary Algorithm for Large-scale Many-objective Optimization. *IEEE Transactions on Evolutionary Computation*, 22 (1), 97-112, 2016.
44. **Ran Cheng**, Yaochu Jin, Markus Olhofer, and Bernhard Sendhoff. A Reference Vector Guided Evolutionary Algorithm for Many-Objective Optimization. *IEEE Transactions on Evolutionary Computation*, 20 (5), 773-791, 2016.
45. **Ran Cheng**, Yaochu Jin, Kaname Narukawa, and Bernhard Sendhoff. A Multiobjective Evolutionary Algorithm using Gaussian Process based Inverse Modeling. *IEEE Transactions on Evolutionary Computation*, 19 (6), 838-856, 2015.
46. **Ran Cheng**, and Yaochu Jin. A competitive swarm optimizer for large scale optimization. *IEEE Transactions on Cybernetics*, 45 (2), 191-204, 2015.
47. **Ran Cheng**, and Yaochu Jin. A social learning particle swarm optimization algorithm for scalable optimization. *Information Sciences*, 291, 43-60, 2015.
48. Xingyi Zhang, Ye Tian, **Ran Cheng**, and Yaochu Jin. An efficient approach to nondominated sorting for evolutionary multiobjective optimization. *IEEE Transactions on Evolutionary Computation*, 19 (2), 201-213, 2015.
49. Shenkai Gu, **Ran Cheng**, and Yaochu Jin. Multi-objective ensemble generation. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, 5(5), 234-245, 2015.

Conference Proceedings

1. Lianghao Li, Cheng He, **Ran Cheng**, Linqiang Pan. Large-Scale Multiobjective Optimization via Problem Decomposition and Reformulation. *IEEE Congress on Evolutionary Computation (CEC'2021)*, Krakow, Poland, July, 2021.
2. Cheng He and **Ran Cheng***. Population Sizing of Evolutionary Large-Scale Multiobjective Optimization. *International Conference Series on Evolutionary Multi-Criterion Optimization (EMO'2021)*, Shenzhen, China, March 2021.
3. Jianqing Lin, Cheng He, and **Ran Cheng***. Dimension Dropout for Evolutionary High-Dimensional Expensive Multiobjective Optimization. *International Conference Evolutionary Multi-Criterion Optimization (EMO'2021*), Shenzhen, China, March 2021.
4. Shengran Hu, **Ran Cheng***, Cheng He, and Zhichao Lu. Multi-Objective Neural Architecture Search with Almost No Training. *International Conference Series on Evolutionary Multi-Criterion Optimization (EMO'2021)*, Shenzhen, China, March 2021.

5. Lianghao Li, Cheng He, **Ran Cheng**, and Linqiang Pan. Manifold Learning Inspired Mating Restriction for Evolutionary Constrained Multiobjective Optimization. *International Conference Series on Evolutionary Multi-Criterion Optimization (EMO'2021)*, Shenzhen, China, March 2021.
6. Changwu Huang, Lianghao Li, Cheng He, **Ran Cheng**, and Xin Yao. Operator-Adapted Evolutionary Large-Scale Multiobjective Optimization for Voltage Transformer Ratio Error Estimation. *International Conference Series on Evolutionary Multi-Criterion Optimization (EMO'2021)*, Shenzhen, China, March 2021.
7. Cheng He, **Ran Cheng***, Ye Tian, and Xingyi Zhang. Iterated Problem Reformulation for Evolutionary Large-Scale Multiobjective Optimization. *IEEE Congress on Evolutionary Computation (CEC'2020)*, Glasgow, UK, June 2020.
8. Ye Tian, **Ran Cheng**, Xingyi Zhang, and Yaochu Jin. Iterated Problem Reformulation for Evolutionary Large-Scale Multiobjective Optimization. *IEEE Congress on Evolutionary Computation (CEC'2020)*, Glasgow, UK, June 2020.
9. Yiming Chen, Tianci Pan, Cheng He, and **Ran Cheng***. Efficient Evolutionary Deep Neural Architecture Search (NAS) by Noisy Network Morphism Mutation. *The 14th International Conference on Bio-inspired Computing: Theories and Applications (BIC-TA)*, Zhengzhou, China, December 2019.
10. Hao Tan, Cheng He, Dexuan Tang, and **Ran Cheng***. Efficient Evolutionary Neural Architecture Search (NAS) by Modular Inheritable Crossover. *The 14th International Conference on Bio-inspired Computing: Theories and Applications (BIC-TA)*, Zhengzhou, China, December 2019.
11. Kanzhen Wan, Cheng He, Auraham Camacho, Ke Shang, **Ran Cheng**, and Hisao Ishibuchi. A Hybrid Surrogate-Assisted Evolutionary Algorithm for Computationally Expensive Many-Objective Optimization. *IEEE Congress on Evolutionary Computation (CEC'2019)*, Wellington, New Zealand, June 2019.
12. Cheng He, **Ran Cheng***, Yaochu Jin, and Xin Yao. Surrogate-Assisted Expensive Many-Objective Optimization by Model Fusion. *IEEE Congress on Evolutionary Computation (CEC'2019)*, Wellington, New Zealand, June 2019.
13. Ye Tian, Xiaoshu Xiang, Xingyi Zhang, **Ran Cheng** and Yaochu Jin. Sampling Reference Points on the Pareto Fronts of Benchmark Multi-Objective Optimization Problems. *IEEE Congress on Evolutionary Computation (CEC'2018)* ,Rio de Janeiro, Brazil, July 2018.
14. Murillo Carneiro, Thiago Cupertino, **Ran Cheng**, Yaochu Jin, and Liang Zhao. Nature-Inspired Graph Optimization for Dimensionality Reduction. *International Conference on Tools with Artificial Intelligence(ICTAI'2017)*, Boston, Massachusetts, USA, November 2017.
15. Liangli Zhen, Miqing Li, **Ran Cheng**, Dezhong Peng, and Xin Yao, Adjusting Parallel Coordinates for Investigating Multi-Objective Search. *Proceedings of the 11th International Conference on Simulated Evolution and Learning (SEAL'2017)*, Shenzhen, China, November 2017.
16. **Ran Cheng**, Miqing Li, and Xin Yao. Parallel Peaks: A Visualization Method for Benchmark Studies of Mulitmodal Optimization. *IEEE Congress on Evolutionary Computation (CEC'2017)*, Donostia-San Sebastian, Spain, July 2017.
17. Chengzhi Wang, Jinliang Ding, **Ran Cheng**, Changxin Liu, and Tianyou Chai. Data-Driven Surrogate-Assisted Multi-Objective Optimization of Complex Beneficiation Operational Process. *World Congress of the International Federation of Automatic Control (IFAC'2017)*, Toulouse, France, July 2017.
18. Ye Tian, Xingyi Zhang, **Ran Cheng**, and Yaochu Jin. Empirical Analysis of Non-Dominated Sorting Approach T-ENS for Many-Objective Optimization. *IEEE Symposium Series on Computational Intelligence (SSCI'2016)*, Athens, Greece, December 2016.

19. Ye Tian, Xingyi Zhang, **Ran Cheng**, and Yaochu Jin. A Multi-objective Evolutionary Algorithm Based on an Enhanced Inverted Generational Distance Metric. *IEEE Congress on Evolutionary Computation (CEC'2016)*, Vancouver, Canada, July 2016.
20. Murillo Carneiro, Liang Zhao, **Ran Cheng**, and Yaochu Jin. Network Structural Optimization Based on Swarm Intelligence for Highlevel Classification. International Joint Conference on Neural Networks (CEC'2016), Vancouver, Canada, July 2016.
21. **Ran Cheng**, Markus Olhofer, and Yaochu Jin. Reference Vector Based a posteriori Preference Articulation for Evolutionary Multiobjective Optimization. *IEEE Congress on Evolutionary Computation (CEC'2015)*, Sendai, Japan, 2015.
22. **Ran Cheng**, Yaochu Jin, and Kaname Narukawa. Adaptive Reference Vector Generation for Inverse Model based Evolutionary Multiobjective Optimization with Degenerate and Disconnected Pareto Fronts. *Evolutionary Multi-Criterion Optimization (EMO'2015)*, Guimaraes, Portugal, 2015.
23. **Ran Cheng**, and Yaochu Jin. Demonstrator Selection in a Social Learning Particle Swarm Optimizer. *IEEE Congress on Evolutionary Computation (CEC'2014)*, Beijing, China, 2014.
24. **Ran Cheng**, and Yaochu Jin, Simulating Swarm Behaviuors for Optimisation by Learning from Neighbours. *UK Workshop on Computational Intelligence (UKCI'2013)*, Guildford, UK, 2013.
25. **Ran Cheng**, Chaoli Sun, and Yaochu Jin, A Multi-swarm Evolutionary Framework based on a Feedback Mechanism. *IEEE Congress on Evolutionary Computation (CEC'2013)*, Cancun, Mexico, 2013.

Professional Services

Memberships

2021 – now: IEEE Senior Member

2015 – 2021: IEEE Member

Editorships

2020 – now: Associate Editor, *IEEE Transactions on Artificial Intelligence*

2018 – now: Associate Editor, *IEEE Access*

2018 – now: Editorial Board Member, *Applied Soft Computing*

2017 – now: Editorial Board Member, *Complex & Intelligent Systems*

Committee Services

2021 – now: Founding Chair, IEEE CIS Shenzhen Chapter

2020 – now: Chair, IEEE CIS Task Force on Data-Driven Evolutionary Optimization of Expensive Problems

2020 – now: Committee Member, IEEE CIS Evolutionary Computation Technical Committee

2018 – 2019: Committee Member, IEEE CIS Data Mining and Big Data Analytics Technical Committee

2018 – 2019: Committee Member, IEEE CIS Emergent Technologies Technical Committee

2017 – 2018: Founding Vice-Chair, IEEE CIS Task Force on Many-Objective Optimisation

Organizer of Academic Events

EMO'2021: Organizing Chair, 2021 International Conference on Evolutionary Multi-Criterion Optimization, Shenzhen, China

IEEE MBEA'2020: Co-Chair, 2020 IEEE Symposium on Model-Based Evolutionary Algorithms, Canberra, Australia

IEEE MBEA'2019: Co-Chair, 2019 IEEE Symposium on Model-Based Evolutionary Algorithms, Xiamen, China

IEEE MBEA'2018: Co-Chair, 2018 IEEE Symposium on Model-Based Evolutionary Algorithms, Bengaluru, India

IEEE CEC'2018: Co-Chair, 2018 IEEE CEC Competition on Many-Objective Optimization, Rio de Janeiro, Brazil

IEEE CEC'2018: Co-Chair, 2018 IEEE CEC Special Session on Many-Objective Optimization, Rio de Janeiro, Brazil

IEEE CEC'2017: Co-Chair, 2017 IEEE CEC Competition on Evolutionary Many-Objective Optimization, Donostia - San Sebastian, Spain

IEEE MBEA'2017: Co-Chair, 2017 IEEE Symposium on Model-Based Evolutionary Algorithms, Hawaii, USA

IEEE MBEA'2016: Co-Chair, 2016 IEEE Symposium on Model-Based Evolutionary Algorithms, Athens, Greece

IEEE SSCI'2016: Web Chair, 2016 IEEE Symposium Series on Computational Intelligence, Athens, Greece

IEEE SSCI'2016: Poster Session Chair, 2016 IEEE Symposium Series on Computational Intelligence, Athens, Greece

IEEE CEC'2016: Co-Organizer, Special Session on Efficient Non-dominated Sorting and Pareto Approaches to Many-Objective Optimization, Vancouver, Canada

Program Committee Membership

ACM GECCO'2020: PC Member, 2020 ACM Genetic and Evolutionary Computation Conference, Cancun, Mexico

IEEE CEC'2020: PC Member, 2020 IEEE Congress on Evolutionary Computation, Glasgow, United Kingdom

ACM GECCO'2019: PC Member, 2019 ACM Genetic and Evolutionary Computation Conference, Prague, Czech Republic

IEEE CEC'2019: PC Member, 2019 IEEE Congress on Evolutionary Computation, Wellington, New Zealand

AAAI'2019: PC Member, 33rd AAAI Conference on Artificial Intelligence, Honolulu, Hawaii, USA

IEEE (SMC) INISTA'2018: PC Member, 2018 IEEE International Conference on Innovations in Intelligent Systems and Applications, Thessaloniki, Greece

IJCAI'2018: PC Member, 27th International Joint Conference on Artificial Intelligence, Stockholm, Sweden

IEEE CEC'2018: TPC Member, 2018 IEEE Congress on Evolutionary Computation, Rio de Janeiro, Brazil

ACM GECCO'2018: PC Member, 2018 ACM Genetic and Evolutionary Computation Conference, Kyoto, Japan

IEEE CEC'2017: TPC Member, 2017 IEEE Congress on Evolutionary Computation, Donostia - San Sebastian, Spain

IEEE SSCI'2016: PC Member, 2016 IEEE Symposium Series on Computational Intelligence, Athens, Greece

IEEE CEC'2016: TPC Member, 2016 IEEE Congress on Evolutionary Computation, Vancouver, Canada

IEEE MCDM'2015: TPC Member, 2015 IEEE Symposium Series on Computational Intelligence in Computational Intelligence in Multi-Criteria Decision-Making, Cape Town, South Africa

IEEE UKCI'2013: PC Member, 13th UK Workshop on Computational Intelligence, Guildford, UK

Referees

Yaochu Jin
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