Yuan Sun

Contact Information	Room 14.08.7B, RMIT University, Melbourne, VIC 3000	Tel: (+61) 3 9925-3959 yuan.sun@rmit.edu.au

Research Interests

Artificial intelligence, machine learning assisted optimization, large-scale optimization, evolutionary computation, operations research, deep learning, feature selection.

Education

University of Melbourne, Parkville, VIC, AU

Ph.D., Artificial Intelligence and Image Processing, October 2013 – April 2018

- Thesis Topic: *On the Analysis of Interaction between Decision Variables*
- Supervisors: Associate Professor Michael Kirley and Professor Saman Halgamuge

Peking University, Beijing, CHINA

B.S., Theoretical and Applied Mechanics, September 2009 – July 2013

- Thesis Topic: *On the Comparison of Three Industrial Alarm Systems*
- Supervisor: Professor Jiandong Wang

Refereed Journal Publications

1. **Sun, Y.**, Li, X., Ernst A. "Using Statistical Measures and Machine Learning for Graph Reduction to Solve Maximum Weight Clique Problems." *IEEE Transactions on Pattern Analysis and Machine Intelligence*, in press. Journal impact factor: 17.7.
2. Jayasundara, D., Herath, D., Senanayake, D., Saeed, I., Yang, C.Y., **Sun, Y.**, Chang, B.C., Tang, S.L. and Halgamuge, S. "ENVirT: Inference of Ecological Characteristics of Viruses from Metagenomic Data." *BMC Bioinformatics*, 19(13): 377, 2019. Journal impact factor: 2.5.
3. **Sun, Y.**, Kirley, M., Halgamuge, S. "A Recursive Decomposition Method for Large Scale Continuous Optimization." *IEEE Transactions on Evolutionary Computation*, 22(5), 647-661, 2018. Journal impact factor: 8.5.
4. **Sun, Y.**, Kirley, M., Halgamuge, S. "Quantifying Variable Interactions in Continuous Optimization Problems." *IEEE Transactions on Evolutionary Computation*, 21(2): 249-264, 2017. Journal impact factor: 8.5.
5. Muoz, M A., **Sun, Y.**, Kirley, M., Halgamuge, S. "Algorithm Selection for Black-box Continuous Optimization Problems: A Survey on Methods and Challenges." *Information Sciences*, 317: 224-245, 2015. Journal impact factor: 5.5.

Conference Publications

1. **Sun, Y.**, Wang, W., Kirley, M., Li, X., Chan, J. "Revisiting Probability Distribution Assumptions for Information Theoretic Feature Selection." *To be presented at AAAI 2020 in New York.*
2. Kenny, A., Li, X., Ernst, A.T., **Sun, Y**. "An Improved Merge Search Algorithm for The Constrained Pit Problem in Open-pit Mining." In *Proceedings of the Genetic and Evolutionary Computation Conference.* ACM, 294-302, 2019.
3. **Sun, Y.**, Li, X., Ernst, A., Omidvar, M.N. "Decomposition for Large-scale Optimization Problems with Overlapping Components." *IEEE Congress on Evolutionary Computation.* IEEE, 326-333, 2019.
4. Wang, W., **Sun, Y.**, Halgamuge, S. "Improving MMD-GAN Training with Repulsive Loss Function". *International Conference on Learning Representations.* 2019.

5. **Sun, Y.**, Omidvar, M. N., Kirley, M., Li, X. "Adaptive Threshold Parameter Estimation with Recursive Differential Grouping for Problem Decomposition." In *Proceedings of Genetic and Evolutionary Computation Conference*. ACM, 889-896, 2018.

6. **Sun, Y.**, Kirley, M., Li, X. "Cooperative Co-evolution with Online Optimizer Selection for Large-Scale Optimization." In *Proceedings of Genetic and Evolutionary Computation Conference*. ACM, 1079-1086, 2018.

7. **Sun, Y.**, Kirley, M., Halgamuge, S. "A Memetic Cooperative Co-evolution Model for Large Scale Optimization." *Australasian Conference on Artificial Life and Computational Intelligence*, Springer, Cham, 291-300, 2017.

8. **Sun, Y.**, Kirley, M., Halgamuge, S. "Extended Differential Grouping for Large Scale Global Optimization with Direct and Indirect Variable Interactions." In *Proceedings of Genetic and Evolutionary Computation Conference*. ACM, 313-320, 2015.

9. **Sun, Y.**, Kirley, M., Halgamuge, S. "On the Selection of Decomposition Methods for Large Scale Fully Non-separable Problems." In *Proceedings of the Companion Publication of Genetic and Evolutionary Computation*. ACM, 1213-1216, 2015.

10. **Sun, Y.**, Kirley, M., Halgamuge, S., Muoz, M A. "On the Selection of Fitness Landscape Analysis Metrics for Continuous Optimization Problems." *International Conference on Information and Automation for Sustainability.* IEEE, 1-6, 2014.

Research Experience

Postdoctoral Research Fellow — July 2018 - Present
School of Computer Science and Software Engineering, RMIT University.

Research Assistant — September 2017 – June 2018
School of Computing and Information Systems, University of Melbourne.

Teaching Experience

Head Tutor — February 2017 – November 2017
COMP90038 Algorithm and Complexity,
School of Computing and Information Systems,
University of Melbourne

Tutor — February 2016 – November 2017
COMP90038 Algorithm and Complexity,
School of Computing and Information Systems,
University of Melbourne

Awards

- Melbourne Abroad Travelling Scholarship — July 2015
- Student Grant from GECCO — July 2015
- Melbourne International Engagement Awards — October 2013
- Melbourne International Fee Remission — October 2013

Programming Skills

C, C++, Python, Matlab