FURONG YE

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WORK EXPERIENCE

Postdoc for XAIPre project — Sep. 2024 – Now
Leiden Institute of Advanced Computer Science, Leiden University — Leiden, Netherlands

Postdoc for Tuning Constrained Optimization — Sep. 2023 – Aug. 2024
State Key Laboratory of Computer Science, Chinese Academy of Sciences — Beijing, China

Postdoc for DACCOMPLI project — Jan. 2022 – Aug. 2023
Leiden Institute of Advanced Computer Science, Leiden University — Leiden, Netherlands

EDUCATION

PhD in Computer Science | ***Thesis: Benchmarking Discrete Optimization Heuristics*** — Oct. 2017 – Jun. 2022
Leiden Institute of Advanced Computer Science, Leiden University — Leiden, Netherlands

Master in Engineering | ***Major: Computer Technology*** — Sep. 2014 – Jun. 2017
School of Informatics, Xiamen University — Xiamen, China

Bachelor in Economics | ***Major: Mathematical Statistics*** — Sep. 2011 – Jun. 2014
Wang Yanan Institute for Studies in Economics, Xiamen University — Xiamen, China

Bachelor in Engineering | ***Major: Computer Science*** — Sep. 2010 – Jun. 2014
School of Informatics, Xiamen University — Xiamen, China

PROJECTS AND RESEARCH

XAIPRE Project — Sep. 2024 – Now
NWO-STW project

- Explainable AI for predictive maintenance and solving maintenance scheduling problems.

Development of Constrained Optimization Solvers — Sep. 2023 – Aug. 2024
National Key R&D Program of China

- Automated design and tuning of solvers for Satisfiability and maximal Satisfiability problems

DACCOMPLI Project — Jan. 2022 – Sep. 2023
NWO project

- Automated machine learning for classifying Electroencephalography data.

Iterative Optimization Heuristics Profiler — Oct. 2017 – Now
Open Source Project in Github

- Developing a platform for benchmarking iterative optimizers, programmed in C++ and Python
- Collaborating with international researchers to validate the platform's functionality and performance.

ACHIEVEMENTS AND AWARDS

Grants
MSCA Postdoctoral Fellowship 2025, TSADA (no. 101282832)
Made major contribution to the ARISE-NMD NWO Open Technology Programme (no. 20852)

Outstanding Research Output
My research has been published in leading venues such as IEEE Transactions on Evolutionary Computation, ACM Transactions on Learning and Optimization, Information Sciences, AAAI, GECCO, PPSN, KDD, SAT, etc.

Popular Open Source Project

AutoSAT, to which I am a second author, the first LLM-driven framework automatically optimizing SAT solvers. The package has been acknowledged by SAT competition winners, as well as academic and industrial developers.
IOHprofiler benchmark platform, to which I am a main contributor, has reached 100 stars on GitHub. The package has been recognized and used by researchers worldwide, achieving hundreds of citations

Paper Awards

Best Paper at GECCO Conference 2023
Top 3 downloaded paper at ACM Transactions on Evolutionary Learning and Optimization

Scholarship Awards

National Scholarship of China, the highest honor awarded to university students in China
Xiamen University Scholarship, awarded 7 times, covering all years of study at the university

ACTIVITIES

Program Committee and Paper Review

AAAI, GECCO, PPSN, KDD, EMO, IEEE CEC and EvoStar conferences
IEEE Transactions on Evolutionary Computation, Evolutionary Computation, Applied Soft Computing, etc.

Tutorial and Competition Organization

Tutorial: Benchmarking and analyzing iterative optimization heuristics with IOHprofiler (GECCO, WCCI 2022)
Open Optimization Competition GECCO 2022, together with Nevergrad
Evolutionary Submodular Optimisation Competition GECCO 2022

Lectures and Supervisions

Supervised over 20 master and bachelor students at Leiden University and the Chinese Academy of Science
Lectures: Evolutionary Algorithms, Introduction to Machine Learning (Leiden University)
Teaching Assisting: Algorithm Design and Analysis (Xiamen University)

PhD Seminar Organization

Leiden Institute of Advanced Computer Science (2020)

PUBLICATIONS

Journal Publications

- Huang, Q., **Ye, F.**, Shahane, A., Bäck, T., & van Stein, N. (2026). From Heuristic Selection to Automated Algorithm Design: LLMs Benefit from Strong Priors. *arXiv preprint arXiv:2603.02792.*.
- Sun, Y., **Ye, F.**, Chen, Z., Wei, K., & Cai, S. (2026). Automatically discovering heuristics in a complex SAT solver with large language models. *Nature Communications.*
- Sun, Y., **Ye, F.**, Zhang, X., Huang, S., Zhang, B., Wei, K., & Cai, S. (2026). AutoSAT: Automatically optimize sat solvers via large language models. *Journal of Artificial Intelligence Research*, 86.
- van der Geest, F. N., Tannemaat, M. R., **Ye, F.**, Kononova, A. V., & van Rossum, I. A. (2025). Artificial intelligence for the analysis of head-upright tilt test data in syncope testing: a scoping review. *Clinical Neurophysiology,* 2110933. (**Master project under my supervision**)
- Labiad, I., Bäck, T., Fernandez, P., Najman, L., Sander, T., **Ye, F.**, Zameshina, M., & Teytaud, O. (2024). Log-normal Mutations and their Use in Detecting Surreptitious Fake Images. *Transactions on Machine Learning Research.*
- Vermetten, D., **Ye, F.**, Bäck, T., & Doerr, C. (2024). MA-BBOB: A problem generator for black-box optimization using affine combinations and shifts. *ACM Transactions on Evolutionary Learning*, 5(1), 1-19.
- **de Nobel, J., Ye, F.,(co-first authors)** Vermetten, D., Wang, H., Doerr, C., & Bäck, T. (2024). IOHexperimenter: Benchmarking platform for iterative optimization heuristics. *Evolutionary Computation*, 1-6.
- Back, T. H. W., Kononova, A. V., Stein, N. V., Wang, H., Antonov, K., Kalkreuth, R. T., de Nobel, J., Vermetten, D., de Winter, R., & **Ye, F.** (2023). Evolutionary algorithms for parameter optimization: thirty years later. *Evolutionary Computation,* 31(2), 81-122.

- **Ye, F.**, Doerr, C., Wang, H., & Bäck, T. (2022). Automated configuration of genetic algorithms by tuning for anytime performance. *IEEE Transactions on Evolutionary Computation*, 26(6), 1526-1538.
- Wang, H., Vermetten, D., **Ye, F.**, Doerr, C., & Bäck, T. (2022). IOHanalyzer: Detailed performance analyses for iterative optimization heuristics. *ACM Transactions on Evolutionary Learning and Optimization*, 2(1), 1-29.
- Doerr, C., **Ye, F.**, Horesh, N., Wang, H., Shir, O., & Back, T. (2020). Benchmarking discrete optimization heuristics with IOHprofiler. *Applied Soft Computing*, 88, 106027.
- Zhang, D., Dong, R., Si, Y. W., **Ye, F.**, & Cai, Q. (2018). A hybrid swarm algorithm based on ABC and AIS for 2L-HFCVRP. *Applied Soft Computing*, 64, 468-479.
- Zhang, D., Cai, S., **Ye, F.**, Si, Y., & Nguyen, TT. (2017). A hybrid algorithm for a vehicle routing problem with realistic constraints. *Information Sciences* 394, 167-182.
- **Ye, F.**, Zhang, L., Zhang, D., Fujita, H., & Gong, Z. (2016). A novel forecasting method based on multi-order fuzzy time series and technical analysis. *Information Sciences*, 367, 41-57.
- Zhang, D., Che, Y., **Ye, F.**, Si, Y. W., & Leung, S. C. (2016). A hybrid algorithm based on variable neighbourhood for the strip packing problem. *Journal of Combinatorial Optimization*, 32, 513-530.

Conference Publications

- Zhang, X., **Ye, F.**, Chen, Z., & Cai, S. (2026). FastLEC: Parallel Datapath Equivalence Checking with Hybrid Engines. In *International Symposium on Formal Methods* (pp. 89-108).
- **Ye, F.**, Neumann, F., Bäck, T., & van Stein, N. (2026). Block-Bench: A Framework for Controllable and Transparent Discrete Optimization Benchmarking. In *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO)*.
- Huang, Q., Kitharidis, S., **Ye, F.**, Ottolini, M., Bäck, T., & van Stein, N. (2025).Gradient Free Multi-Objective Counterfactual Explainability for Multivariate Time Series Classification.. In *Proceedings of IEEE International Conference on Big Data (BigData)*(pp. 936-946)
- **Ye, F.**, Luo, C., & Cai, S. (2025). Better Understandings and Configurations in MaxSAT Local Search Solvers via Anytime Performance Analysis. In *Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*(pp. 27153-27160)
- Li, Y., Huang, Y., Mao, W., **Ye, F.**, He, X., Zu, Z., & Cai, S. (2024). Bi-Objective Contract Allocation for Guaranteed Delivery Advertising. In *Proceedings of ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)* (pp. 1691-1700). (**Master project under my supervision**)
- Chu, Y., Li, C. M., **Ye, F.**, & Cai, S. (2024). Enhancing MaxSAT Local Search via a Unified Soft Clause Weighting Scheme. In *Proceedings of International Conference on Theory and Applications of Satisfiability Testing (SAT)*(pp. 1-18).
- **Ye, F.**, Neumann, F., de Nobel, J., Neumann, A., & Bäck, T. (2024). What Performance Indicators to Use for Self-Adaptation in Multi-Objective Evolutionary Algorithms. In *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO)* (pp. 787-795).
- Vermetten, D., **Ye, F.**, & Doerr, C. (2023). Using affine combinations of BBOB problems for performance assessment. In *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO)* (pp. 873-881). **(Best-paper award)**
- Vermetten, D., **Ye, F.**, Bäck, T., & Doerr, C. (2023). MA-BBOB: Many-affine combinations of bbob functions for evaluating automl approaches in noiseless numerical black-box optimization contexts. In *Proceedings of International Conference on Automated Machine Learning (AutoML)* (pp. 224:7/1-14).
- Kalkreuth, R., Vašíček, Z., Husa, J., Vermetten, D., **Ye, F.**, & Bäck, T. (2023). General Boolean Function Benchmark Suite. In *Proceedings of the ACM/SIGEVO Conference on Foundations of Genetic Algorithms (FOGA)* (pp. 84-95).
- Thomaser, A., De Nobel, J., Vermetten, D., **Ye, F.**, Bäck, T., & Kononova, A. (2023). When to be discrete: analyzing algorithm performance on discretized continuous problems. In *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO)* (pp. 856-863).
- Neumann, F., Neumann, A., Qian, C., Do, A. V., de Nobel, J., Vermetten, D., Ahouei, S.S., **Ye, F.**, Hao, W., & Bäck, T. (2023). Benchmarking algorithms for submodular optimization problems using IOHProfiler. In *Proceedings IEEE Congress on Evolutionary Computation (CEC)* (pp. 1-9).

- **Ye, F.**, Vermetten, D., Doerr, C., & Bäck, T. (2022). Non-elitist Selection Can Improve the Performance of Irace. In *Proceedings of International Conference on Parallel Problem Solving from Nature (PPSN)* (pp. 32-45).
- **Ye, F.**, Doerr, C., & Bäck, T. (2021). Leveraging benchmarking data for informed one-shot dynamic algorithm selection. In *Proceedings of the Genetic and Evolutionary Computation Conference Companion (GECCO)* (pp. 245-246).
- **Ye, F.**, Wang, H., Doerr, C., & Bäck, T. (2020). Benchmarking a $(\mu + \lambda)$ Genetic Algorithm with Configurable Crossover Probability. In *Proceedings of International Conference on Parallel Problem Solving from Nature (PPSN)* (pp. 699-713).
- **Ye, F.**, Doerr, C., & Bäck, T. (2019). Interpolating local and global search by controlling the variance of standard bit mutation. In *Proceedings of IEEE Congress on Evolutionary Computation (CEC)* (pp. 2292-2299).
- Doerr, C., **Ye, F.**, van Rijn, S., Wang, H., & Bäck, T. (2018). Towards a theory-guided benchmarking suite for discrete black-box optimization heuristics: profiling $(1 + \lambda)$ EA variants on OneMax and LeadingOnes. In *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO)* (pp. 951-958).
- **Ye, F.**, You, Z., Zhang, D., & Leung, S. C. (2016, July). Discrete differential evolutionary algorithm for job-shop scheduling problem with minimizing total weighted tardiness. In *Proceedings of IEEE Congress on Evolutionary Computation (CEC)* (pp. 56-62).