Shuhei Watanabe

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Education

Oct 2020 – Oct 2023	**University of Freiburg** - Freiburg, Germany. Master of Computer Science. Supervisor: Prof. Frank Hutter. Overall GPA: 1.1/5.0 (1.0 is the best grade).
Sep 2015 – Mar 2020	**The University of Tokyo** - Tokyo, Japan. Bachelor in Systems Innovation, Faculty of Engineering. Break for working at M3 and AIST from Apr 2018 to Sep 2019. Overall GPA: 3.78/4.0 (4.0 is the best grade). Graduated with **the Best GPA** out of 37 students.
Apr 2014 – Aug 2015	**The University of Tokyo** - Tokyo, Japan. Bachelor of College of Arts and Science, Natural Science 1.

Employment

Jun 2024 – Present	**National Institute of Advanced Industrial Science and Technology (AIST)** - Tokyo, Japan. Visiting Researcher of Social Intelligence Research Team.
Oct 2023 – Present	**Preferred Networks Inc.** - Tokyo, Japan. Development of Optuna and support of its internal usage.
Dec 2020 – Oct 2023	**Machine Learning Lab** - Freiburg, Germany. Development of Auto-PyTorch, an AutoML tool.
Sep 2018 – Sep 2020	**National Institute of Advanced Industrial Science and Technology (AIST)** - Tokyo, Japan. Technical Staff (Full-Time) of Social Intelligence Research Team for AutoML Research.
Apr 2018 – Aug 2018	**M3, Inc.** - Tokyo, Japan. Market Researcher and Consultant (Full-Time Internship). Genome Business Consulting.

Awards / Honors

Sep 2023	**AutoML 2023 Travel Awards** (500 EURO).
Aug 2023	**IJCAI-AIJ 2023 Travel and Accessibility Grant Program** (1,000 USD).
Oct 2022	**NeurIPS 2022 Complimentary Registration** (350 USD). Supported by Gaussian Processes workshop organizers.
Oct 2022	**ELIZA MSc Scholarship** (1,000 Euro/month). 4 students were selected from the whole Computer Science Master Program in the University of Freiburg.
Oct 2022	**Deutschlandstipendium** (300 Euro/month).

Jul 2022 **1st Prize in AutoML2022: Multiobjective Hyperparameter Optimization for Transformers**

Sep 2020 **ITO Foundation for International Education Exchange**
(2,000 USD/month for 2 years, AR: 13/193=6.7%).

Mar 2020 **Hatakeyama Award from the Japan Society of Mechanical Engineers**.
This award is for the distinctive grades at the mechanical engineering related faculties at the University of Tokyo (AR: 5/340=1.5%).

May 2019 **PRMU 2018 Yearly Research Encouragement Award**.
The paper "*Speed Up of Hyper-Parameter Tuning with Nelder-Mead Method by Parallel Computing*" was awarded. 3 papers were selected out of 170 papers. (AR: 3/170=1.8%).

Oct 2014 **1st Prize in the Freshman Team Hokei in the National Intercollegiate Taido Tournament**. Taido is one of the Japanese traditional martial arts.

Selected Publications

The full publication list is available in **my website**. AR, ◯, and ♣ refer to the acceptance rate, the presenter and the equally contributed authors, respectively.

Referred Conference Publications

1. ◯ **S. Watanabe**, F. Hutter (2023). c-TPE: Tree-Structured Parzen Estimator with Inequality Constraints for Expensive Hyperparameter Optimization. International Joint Conference on Artificial Intelligence (IJCAI) (AR: 644/4566≃14%).
2. ◯ **S. Watanabe**, N. Awad, M. Onishi, F. Hutter (2023). Speeding Up Multi-Objective Hyperparameter Optimization by Task Similarity-Based Meta-Learning for the Tree-Structured Parzen Estimator. International Joint Conference on Artificial Intelligence (IJCAI) (AR: 644/4566≃14%).
3. ◯ **S. Watanabe**, A. Bansal, F. Hutter (2023). PED-ANOVA: Efficiently Quantifying Hyperparameter Importance in Arbitrary Subspaces. International Joint Conference on Artificial Intelligence (IJCAI) (AR: 644/4566≃14%).
4. ◯ ♣ M. Nomura, ♣ **S. Watanabe**, Y. Akimoto, Y. Ozaki, M. Onishi (2021). Warm Starting CMA-ES for Hyperparameter Optimization. AAAI Conference on Artificial Intelligence (AAAI). (AR: 1692/9034=19%).
5. ◯ Y. Ozaki, Y. Tanigaki, **S. Watanabe**, M. Onishi (2020). Multiobjective Tree-Structured Parzen Estimator for Computationally Expensive Optimization Problems. The Genetic and Evolutionary Computation Conference (GECCO).

Preprints

1. ♣ Y. Ozaki, ♣ **S. Watanabe**, T. Yanase (2025). OptunaHub: A Platform for Black-Box Optimization. arXiv:2510.02798.
2. **S. Watanabe** (2023). Tree-Structured Parzen Estimator: Understanding Its Algorithm Components and Their Roles for Better Empirical Performance. arXiv:2304.11127.
3. ◯ **S. Watanabe**, Y. Ozaki, M. Onishi (2019). Speed Up of Hyper-Parameter Tuning with Nelder–Mead Method by Parallel Computing. Pattern Recognition and Media Understanding (PRMU). **PRMU 2018 Yearly Research Encouragement Award** (AR: 3/170=1.8%).

Mentoring & Supervision

Jun 2024 – Present	**Chisa Mori**, MSc Student, AIST. Theme: Parallel coordinate plots for multi-objective problems.
Jul 2024 – Present	**Kaito Baba**, MSc Student, Preferred Networks. Theme: Development of constrained optimization for the Gaussian process-based sampler (Single-objective, Multi-objective).
Aug 2025 – Present	**Kaichi Irie**, MSc Student, Preferred Networks & AIST. Theme: Development of parallel processing in the Gaussian process-based sampler (Article).

Others

- **Japanese** (Native Language), **English** (C1, TOEFL iBT: 100), **German** (B2)
- **AtCoder**: Highest Rating 1626 (Approx. Top 3.5%)