

Yuta Saito

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Research Interests

My research lies at the intersection of machine learning and causal inference called *counterfactual machine learning*. I am interested in the counterfactual nature of logged bandit feedback obtained from interactive systems, and ways of using biased real-world datasets to assist better decision making.

Education

2016 - Present **Tokyo Institute of Technology**
B.Eng. in Industrial Engineering and Economics
Research Field: Counterfactual Machine Learning, Causal Inference, Information Retrieval

Publications (refereed)

1. Yuta Saito and Shota Yasui. “**Counterfactual Cross-Validation: Stable Model Selection Procedure for Causal Inference Models**”, In *Proceedings of 37th International Conference on Machine Learning (ICML2020)*, 2020 (to appear).
2. Yuta Saito. “**Asymmetric Tri-training for Debiasing Missing-Not-At-Random Explicit Feedback**”, In *Proceedings of the 43rd International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR2020)*, 2020.
3. Yuta Saito, Gota Morishita, and Shota Yasui. “**Dual Learning Algorithm for Delayed Conversions**”, In *Proceedings of the 43rd International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR2020)*, 2020 (short paper).
4. Yuta Saito, Hayato Sakata, and Kazuhide Nakata. “**Cost-Effective and Stable Policy Optimization Algorithm for Uplift Modeling with Multiple Treatments**”, In *Proceedings of the 2020 SIAM International Conference on Data Mining (SDM2020)*, 2020.
5. Yuta Saito, Suguru Yaginuma, Yuta Nishino, Hayato Sakata, and Kazuhide Nakata. “**Unbiased Recommender Learning from Missing-Not-At-Random Implicit Feedback**”, In *Proceedings of the 13th International Conference on Web Search and Data Mining (WSDM2020)*, 2020.
6. Yuta Saito, Hayato Sakata, and Kazuhide Nakata. “**Doubly Robust Prediction and Evaluation Methods Improve Uplift Modeling for Observational Data**”, In *Proceedings of the 2019 SIAM International Conference on Data Mining (SDM2019)*, 2019.

Workshop Papers (refereed)

1. Yuta Saito. “**Offline Recommender Learning Meets Unsupervised Domain Adaptation**”, *The first forum for newcomers to ML co-located with NeurIPS (NewInML2019)*, 2019.

2. [Yuta Saito](#). “**Unbiased Pairwise Learning from Implicit Feedback**”, *NeurIPS 2019 Workshop on Causal Machine Learning (CausalML2019)*, 2019.
3. Masahiro Nomura and [Yuta Saito](#) (equal contribution). “**Multi-Source Unsupervised Hyperparameter Optimization**”. *ICML 2020 Workshop on Automated Machine Learning (AutoML)*, 2020.

Preprints and Under Review Papers

1. [Yuta Saito](#). “**Dual Matrix Factorization for Recommendation with Missing-Not-At-Random Implicit Feedback**”.
2. [Yuta Saito](#). “**Unbiased Recommender Learning from Biased Graded Implicit Feedback**”.
3. [Yuta Saito](#). “**Doubly Robust Estimator for Ranking Metrics with Post-Click Conversions**”.
4. [Yuta Saito](#). “**Unbiased Pairwise Learning from Biased Implicit Feedback**”.
5. Daisuke Moriwaki, Yuta Hayakawa, Isshu Munemasa, [Yuta Saito](#), and Akira Matsui. “**Unbiased Lift-based Bidding System**”.

Work and Internship Experiences

- Apr 2020 - Present** Sony Corporation, Shinagawa, Tokyo, Japan
Research Partner (under an outsourcing agreement)
 Empirical study on heterogeneous causal effect prediction and its application to treatment optimization.
- Apr 2020 - Present** CyberAgent, Inc., AI Lab, Shibuya, Tokyo, Japan
Research Partner (under an outsourcing agreement)
 Research on counterfactual machine learning. Published one short paper and two workshop papers at top-tier machine learning conferences.
- Apr 2020 - Present** SMN Corporation, a.i lab., Osaki, Tokyo, Japan.
Research Partner (under an outsourcing agreement)
 Research on debiasing methods for recommender systems and learning-to-rank.
- Feb 2020 - Present** ZOZO Technologies, Inc., Aoyama, Tokyo, Japan
Research Partner (under an outsourcing agreement)
 Empirical study on off-policy evaluation and its application to a large-scale fashion e-commerce recommender system.
- Nov 2019 - Present** Jinch Co., Ltd., Suginami-ku, Tokyo, Japan
Part-time Researcher
 Research on off-policy evaluation (joint with Yusuke Narita).
- Mar 2019 - Jun 2019** Nakata Lab, Tokyo Institute of Technology, Meguro-ku, Tokyo, Japan.
Research Assistant
 Research on uplift modeling.
- Dec 2017 - Sep 2019** SMN Corporation, a.i lab., Osaki, Tokyo, Japan.
Research Internship
 Research on uplift modeling and recommender systems. Published three full papers at top-tier machine learning conferences.

Professional Activities

Conference Oral Presentations

- Feb 2020** International Conference on Web Search and Data Mining (WSDM)
“Unbiased Recommender Learning from Missing-Not-At-Random Implicit Feedback”
- Dec 2019** NeurIPS Workshop on Causal Machine Learning
“Unbiased Pairwise Learning from Implicit Feedback”
- May 2019** SIAM International Conference on Data Mining (SDM)
“Doubly Robust Prediction and Evaluation Methods Improve Uplift Modeling for Observational Data”

Selected Invited Talks

- Oct 2019** Mitsubishi UFJ Research and Consulting / Metrics Work Consultants Inc., Minato-ku, Tokyo, Japan
“Intesection of Causal Inference and Machine Learning: An Overview”
- Jul 2019** Sony Corporation., Osaki, Tokyo, Japan
“Recent Topics on Counterfactual Machine Learning”
- May 2019** CyberAgent, Inc., AdTech Studio., Shibuya, Tokyo, Japan
“Unsupervised Domain Adaptation and Its Application to CTR Prediction”

Languages

Japanese (native), English

Referees

Available upon request.