

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. “**Unbiased Pairwise Learning from Biased Implicit Feedback**”. In *Proceedings of 6th ACM SIGIR International Conference on the Theory of Information Retrieval (ICTIR2020)*, 2020.
2. 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.
3. 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.
4. 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).
5. 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.
6. 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.
7. 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. Masahiro Nomura and Yuta Saito (equal contribution). “**Multi-Source Unsupervised Hyperparameter Optimization**”. *ICML 2020 Workshop on Automated Machine Learning (AutoML)*, 2020.
2. Yuta Saito. “**Offline Recommender Learning Meets Unsupervised Domain Adaptation**”. *The first forum for newcomers to ML co-located with NeurIPS (NewInML2019)*, 2019.

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. Daisuke Moriwaki, Yuta Hayakawa, Isshu Munemasa, Yuta Saito, and Akira Matsui. “**Unbiased Lift-based Bidding System.**”
5. Yuta Saito, Shunsuke Aihara, Megumi Matsutani, and Yusuke Narita. “**A Large-scale Open Dataset for Bandit Algorithms.**”

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 - SMN Corporation, a.i lab., Osaki, Tokyo, Japan.
Sep 2019 *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 (TOEFL ibt: 97)

Referees

Available upon request.