

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: Machine Learning, Causal Inference, Information Retrieval

Publication (referred)

1. **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 (to appear).
2. **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 (to appear).
3. **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.
4. **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.
5. **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 (referred)

1. **Yuta Saito**. Unsupervised Domain Adaptation Meets Offline Recommender Learning. *NewInML session (co-located with NeurIPS 2019)*, 2019.
2. **Yuta Saito**. Unbiased Pairwise Learning from Implicit Feedback. *NeurIPS 2019 Workshop on Causal Machine Learning*, 2019, (**Spotlight Presentation**).
3. **Yuta Saito** and Shota Yasui. Counterfactual Cross-Validation. *ACM RecSys 2019 Workshop on Reinforcement and Robust Estimators for Recommendation (REVEAL)*, 2019.

Preprints and Under Review Papers

1. **Yuta Saito.** Dual Matrix Factorization for Recommendation with Missing-Not-At-Random Implicit Feedback. *Under Review.*
2. **Yuta Saito.** Unbiased Recommender Learning from Biased Graded Implicit Feedback. *Under Review.*
3. **Yuta Saito.** Offline Recommender Learning Meets Unsupervised Domain Adaptation. *Under Review.*
4. **Yuta Saito.** Doubly Robust Estimator for Ranking Metrics with Post-Click Conversions. *Under Review.*
5. **Yuta Saito.** Unbiased Pairwise Learning from Biased Implicit Feedback. *Under Review.*
6. **Yuta Saito** and Shota Yasui. Counterfactual Cross-Validation: Stable Model Selection Procedure for Causal Inference Models. *arxiv preprint arXiv:1909.05299.*

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.
- 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.