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 (peer-reviewed)

1. **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 (to appear).

2. **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.

3. **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 (peer-reviewed)

1. **Yuta Saito**. Unsupervised Domain Adaptation Meets Offline Recommender Learning. *NewInML session (co-located with NeurIPS 2019)*, 2019.

2. **Yuta Saito**, Gota Morishita, and Shota Yasui. Dual Learning Algorithm for Delayed Feedback in Display Advertising. *NeurIPS 2019 Workshop on Causal Machine Learning*, 2019.

3. **Yuta Saito**. Unbiased Pairwise Learning from Implicit Feedback. *NeurIPS 2019 Workshop on Causal Machine Learning*, 2019, (**Spotlight Presentation**).

4. **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**, Gota Morishita, and Shota Yasui. Dual Learning Algorithm for Delayed Conversions. *Under Review*.
2. **Yuta Saito**. Offline Recommender Learning Meets Unsupervised Domain Adaptation. *Under Review*.
3. **Yuta Saito**. Asymmetric Tri-training for Debiasing Missing-Not-At-Random Explicit Feedback. *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*.

Selected Work in Progress

1. **Yuta Saito**, Shonosuke Harada, Makoto Yamada, and Hisashi Kashima. Off-Policy Pairwise Recommender Learning from Biased Post-click Feedback. *Work In Progress*.
2. **Yuta Saito** and Masahiro Nomura. Multi-Source Unsupervised Hyperparameter Optimization. *Work In Progress*.
3. **Yuta Saito**. Dual Matrix Factorization for Recommendation with Missing-Not-At-Random Implicit Feedback. *Work In Progress*.
4. **Yuta Saito**. Unbiased Recommender Learning from Biased Graded Implicit Feedback. *Work In Progress*.

Work and Internship Experiences

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).

Jun 2019 - Present CyberAgent, Inc., AI Lab, Shibuya, Tokyo, Japan
Research Internship

Research on Counterfactual Machine Learning. Published two workshop papers at top-tier machine learning conferences.

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.