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. Yuta Saito, Shunsuke Aihara, Megumi Matsutani, and Yusuke Narita. "**A Large-scale Open Dataset for Bandit Algorithms**." *ICML 2020 Workshop on Real World Experiment Design and Active Learning (RealML2020)*, 2020.
2. Daisuke Moriwaki, Yuta Hayakawa, Isshu Munemasa, Yuta Saito, and Akira Matsui. "**Unbiased Lift-based Bidding System**." In *Proceedings of the 2020 AdKDD&TargetAd Workshop, held in conjunction with the 26th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD2020)*, 2020.
3. Masahiro Nomura and Yuta Saito (equal contribution). "**Multi-Source Unsupervised Hyperparameter Optimization**". *ICML 2020 Workshop on Automated Machine Learning (AutoML2020)*, 2020.
4. 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**".

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 (TOEFL iBT: 97)

Referees

Available upon request.