

YUTA SAITO

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EDUCATION

Tokyo Institute of Technology, Tokyo
Bachelor of Engineering
Industrial Engineering and Economics.

Apr 2016 - present

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.

PUBLICATIONS (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 SIAM International Conference on Data Mining (SDM20), Cincinnati, Ohio, USA, May. 7-9, 2020.
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 ACM International Conference on Web Search and Data Mining (WSDM20), Houston, Texas, USA, Feb. 3-7, 2020.
3. **Yuta Saito**, “[Unsupervised Domain Adaptation Meets Offline Recommender Learning](#)”, NewInML session (co-located with NeurIPS), Vancouver, British Columbia, Canada, Dec. 9, 2019.
4. **Yuta Saito**, Gota Morishita, and Shota Yasui, “[Dual Learning Algorithm for Delayed Feedback in Display Advertising](#)”. NeurIPS Workshop on Causal Machine Learning, Vancouver, British Columbia, Canada, Dec. 14, 2019.
5. **Yuta Saito**, “Unbiased Pairwise Learning from Implicit Feedback”. NeurIPS Workshop on Causal Machine Learning, Vancouver, British Columbia, Canada, Dec. 14, 2019. (**Spotlight Presentation**)
6. **Yuta Saito** and Shota Yasui, “[Counterfactual Cross-Validation](#)”. ACM RecSys Workshop on Reinforcement and Robust Estimators for Recommendation (REVEAL), Copenhagen, Denmark, Sep. 20, 2019.
7. **Yuta Saito**, Hayato Sakata, and Kazuhide Nakata, “[Doubly Robust Prediction and Evaluation Methods Improve Uplift Modeling for Observational Data](#)”. In Proceedings of the SIAM International Conference on Data Mining (SDM19), Calgary, Alberta, Canada, May. 2-4, 2019. (**Oral Presentation**)

PREPRINTS

1. **Yuta Saito** and Shota Yasui, “[Counterfactual Cross-Validation: Effective Causal Model Selection from Observational Data](#)”, *arXiv:1909.05299*.
2. **Yuta Saito**, “[Eliminating Bias in Recommender Systems via Pseudo Labeling](#)”, *arXiv:1910.01444*.

WORK & INTERNSHIP EXPERIENCES

ZOZO Technologies, Inc.

Nov 2019 - present

Research Internship

- Empirical studies on off-policy evaluation.

Jinch Co., Ltd.

Nov 2019 - present

Part-time Researcher

- Empirical studies on off-policy evaluation.
- Work with Prof. Yusuke Narita (Yale Univ.).

CyberAgent, Inc. AI Lab

Jun 2019 - present

Research Internship

- Model selection for causal inference models [[RecSys'19 WS](#)]
- Offline learning with delayed feedback data in display advertising [[NeurIPS'19 WS](#)]

Nakata Lab, Tokyo Institute of Technology

Apr 2019 - present

Research Assistant

- Treatment allocation optimization [[SDM'20](#)]

So-net Media Networks Corp., a.i lab.

Dec 2017 - Sep 2019

Research Internship

- Unbiased recommender learning from implicit feedback [[WSDM'20](#)]
- Offline lift-effect prediction using observational data [[SDM'19](#)]

Cancer Scan

Oct 2017 - Feb 2018

Data Science Internship

- Treatment optimization in health marketing.

PERSONAL RESEARCH PROJECTS

Unsupervised Domain Adaptation Meets Offline Recommender Learning.

2019

- I constructed a new theory of recommendation with missing-not-at-random feedback using the theoretical framework of unsupervised domain adaptation. The proposed method can alleviate bias and solve the limitations of previously proposed causality-based approaches. [[NeurIPS'19](#) [NewInML](#)]

Eliminating Bias in Recommender Systems via Pseudo-Labeling.

2019

- I applied a well-performing asymmetric tri-training framework in unsupervised domain adaptation to the missing-not-at-random recommendation. I also conducted a theoretical analysis of the strength of the proposed prediction method in the recommendation setting.

Unbiased Pairwise Learning from Implicit Feedback.

2019

- I developed an unbiased pairwise loss function and a corresponding ranking algorithm. The proposed algorithm empirically outperforms the existing baseline methods, including matrix factorization and Bayesian personalized ranking. [[NeurIPS'19 WS](#)]

COURSEWORK

Probability Theory and Statistics / Mathematical Optimization / Mathematical Engineering / Mathematical Economics / Econometrics / Operations Research / Advanced Operations Research / Pattern Recognition

COMPETENCES

Programming and Libraries: Python, R, Matlab, SQL, Google BigQuery, L^AT_EX, Scikit-Learn, Tensorflow, EconML

Languages: English, Japanese

REFERENCES

Kazuhide Nakata (Academic Advisor)

- Associate Professor
- Department of Industrial Engineering and Economics
- Tokyo Institute of Technology
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