

# YUTA SAITO

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## EDUCATION

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

*Apr 2016 - present*

## RESEARCH INTERESTS

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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)

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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. (**Oral Presentation**)
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

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1. **Yuta Saito** and Shota Yasui, “[Counterfactual Cross-Validation: Effective Causal Model Selection from Observational Data](#)”, *arXiv:1909.05299*.

## WORK & INTERNSHIP EXPERIENCES

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### **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](#)]

### **SMN Corporation, 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

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### **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. (Under Review)

### **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

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

## COMPETENCES

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**Programming and Libraries:** Python, R, Matlab, SQL, Google BigQuery, L<sup>A</sup>T<sub>E</sub>X, Scikit-Learn, Tensorflow, EconML

**Languages:** English, Japanese

## REFERENCES

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### **Kazuhide Nakata (Academic Advisor)**

- Associate Professor
- Department of Industrial Engineering and Economics
- Tokyo Institute of Technology
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### **Yusuke Narita**

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- Yale University
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## LAST UPDATED

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January 25, 2020