

Jiin Woo

Ph.D. Candidate at Carnegie Mellon University

✉ [jiinw \[at\] andrew.cmu.edu](mailto:jiinw[at]andrew.cmu.edu) | 🏠 jiinw.github.io | 🎓 Jiin Woo

Education

Carnegie Mellon University (CMU)

Ph.D. in Electrical & Computer Engineering

Pittsburgh, PA, USA

Aug. 2021 - Present

- Advisors: Yuejie Chi and Gauri Joshi

Korea Advanced Institute of Science and Technology (KAIST)

M.S. in Electrical Engineering

Daejeon, South Korea

Sep. 2016 - Aug. 2018

- Advisor: Yung Yi

Korea Advanced Institute of Science and Technology (KAIST)

B.S. in Mathematical Sciences

Daejeon, South Korea

Feb. 2011 - Aug. 2016

Work Experience

Amazon

Applied Scientist Intern

Seattle, WA, USA

May. 2024 - Aug. 2024

- Worked on LLM-enhanced RL for recommendation systems.

NAVER Search

Machine Learning Engineer

Seongnam, South Korea

Sep. 2018 - Aug. 2021

- Developed a query representation model to identify long-tail query intent, enhanced with a regularized BERT fine-tuning.
- Worked on a personalized keyword recommendation algorithm with contextual multi-armed bandit and Bradley-Terry model.
- Developed a transformer-based user behavior representation, facilitating user satisfaction prediction and user click prediction.

Selected Publications

Preprints

[P1] The Blessing of Heterogeneity in Federated Q-Learning: Linear Speedup and Beyond

Jiin Woo, Gauri Joshi, Yuejie Chi

In submission to JMLR

Conferences

[C4] Federated Offline Reinforcement Learning: Collaborative Single-Policy Coverage Suffices

Vienna, Austria

Jiin Woo, Laixi Shi, Gauri Joshi, Yuejie Chi

International Conference on Machine Learning (ICML), 2024

[C3] The Blessing of Heterogeneity in Federated Q-Learning: Linear Speedup and Beyond

Honolulu, HI, USA

Jiin Woo, Gauri Joshi, Yuejie Chi

International Conference on Machine Learning (ICML), 2023

[C2] Iterative Learning of Graph Connectivity from Partially-Observed Cascade Samples

Online

Jiin Woo, Jungseul Ok, Yung Yi

ACM MobiHoc, 2020

[C1] Rumor Source Detection under Querying with Untruthful Answers

Atlanta, GA, USA

Jaeyoung Choi, Sangwoo Moon, Jiin Woo, KyungHwan Son, Jinwoo Shin, Yung Yi

IEEE INFOCOM, 2017

Journals

[J1] Information Source Finding in Networks: Querying With Budgets

Jaeyoung Choi, Sangwoo Moon, Jiin Woo, KyungHwan Son, Jinwoo Shin, Yung Yi
IEEE/ACM Transactions on Networking, 2020

Research Experience

Yuejie Chi Group and Optimization Probability and Learning (OPAL) Lab, CMU

Aug. 2021 - Present

Graduate Researcher (Advisors: Yuejie Chi and Gauri Joshi)

- Developed provably efficient reinforcement learning algorithms in federated settings.

LeArning in Networking: Algorithm, Design, and Analysis (LANADA) Lab, KAIST

Sep. 2016 - Aug. 2018

Graduate Researcher (Advisor: Yung Yi)

- Proposed a graph structure inference algorithm using partially observed social network datasets.
- Analyzed a rumor source localization algorithm with active querying.
- Developed a lightweight deep Q-network (DQN) structure via parameter sharing based on the symmetry of environments.

Algorithmic Intelligence Laboratory (ALIN-LAB), KAIST

Jun. 2015 - Dec. 2015

Undergraduate Intern (Advisor: Jinwoo Shin)

- Studied the principles of graphical models. Focused on variational methods in parameter estimation.

Artificial Intelligence & Probabilistic Reasoning Laboratory (AIPR-LAB), KAIST

Jan. 2015 - May. 2015

Undergraduate Intern (Advisor: Kee-Eung Kim)

- Studied and implemented kernel-based reinforcement learning methods.

Teaching Experience

Introduction to ML for Engineers (18-461/18-661)

Fall 2024

Teaching Assistant, Carnegie Mellon University (CMU)

Special Topics in Artificial Intelligence: Foundations of Reinforcement Learning (18-813B)

Spring 2023

Teaching Assistant, Carnegie Mellon University (CMU)

Data Structures and Algorithms for Electrical Engineering (EE205)

Fall 2017

Teaching Assistant, Korea Advanced Institute of Science and Technology (KAIST)

Calculus 1, 2 (MAS101, MAS102)

Fall 2016, Fall 2017

Tutor, Korea Advanced Institute of Science and Technology (KAIST)

EE Co-op Program (Field Training and Education Program)

Spring 2017

Teaching Assistant, Korea Advanced Institute of Science and Technology (KAIST)

Honors & Awards

Hsu Chang Memorial Fellowship

USA

Electrical and Computer Engineering Department at Carnegie Mellon University (CMU)

2022-2023

Carnegie Institute of Technology Dean's Fellowship

USA

Carnegie Institute of Technology at Carnegie Mellon University (CMU)

2021-2022

KAIST Support Scholarship

South Korea

Korea Advanced Institute of Science and Technology (KAIST)

Fall 2016 - Spring 2018

Excellence Award in Creative Challenge Type SW R&D Program

Korea IT Business Promotion Association (IPA)

South Korea

Nov. 2015

The National Scholarship for Science and Engineering

Korea Student Aid Foundation (KOSAF)

South Korea

Spring 2011 - Spring 2015

Relevant Coursework

Machine Learning

Distributed and Federated Learning Algorithms, Advanced Introduction to Machine Learning, Convex Optimization, Information Theory, Fundamentals of Machine Learning

Statistics/Math

Intermediate Statistics, Mathematical Statistics, Graph Theory, Lebesgue Integral Theory, Logic and Set Theory, Analysis, Discrete Mathematics, Probability and Statistics, Linear Algebra

Programming/Systems

Operating Systems and System Programming for Electrical Engineering, System Programming, Data structure, Computer Network

Skills

Programming

Python, MATLAB, C, Java

ML, Data Science

Pytorch, Spark, Hive, Hadoop

Others

HTML, CSS, Javascript

Academic Services

Reviewer

NeurIPS (2023), ICLR (2024), ICML (2024), TMLR (2024)