CHEN-YU WEI

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EDUCATION

University of Southern California — Los Angeles, CA
Ph.D. in Computer Science — *2017–2022*
Supervisor: Haipeng Luo
Thesis: Robust and Adaptive Online Decision Making

National Taiwan University — Taipei, Taiwan
M.S. in Communication Engineering — *2013–2015*
Supervisor: Wanjiun Liao
Thesis: Downlink Scheduling Policies in Heterogeneous Networks with User Equipment Side Interference Cancellation

National Taiwan University — Taipei, Taiwan
B.S. in Electrical Engineering — *2008–2012*

EXPERIENCES

University of Virginia — Charlottesville, VA
Assistant Professor — *2023–Present*
Computer Science Department

MIT Institute for Data, Systems, and Society (IDSS) — Cambridge, MA
Postdoctoral Associate — *Spring and Summer 2023*
Supervisor: Alexander Rakhlin

Simons Institute — Berkeley, CA
Research Fellow — *Fall 2022*
Program: Data-Driven Decision Processes

Simons Institute — Berkeley, CA
Student Visitor — *Spring 2022*
Program: Learning and Games

Google Research — Remote
Research Intern — *Summer 2021*
Supervisor: Christoph Dann, Julian Zimmert
Topic: Corruption Robust Reinforcement Learning

Simons Institute — Remote
Student Visitor — *Fall 2020*
Program: Theory of Reinforcement Learning

Microsoft Research — Redmond, WA
Research Intern — *Summer 2020*
Supervisor: Alekh Agarwal
Topic: Personalized Federated Learning

Yahoo Research — New York City
Research Intern — *Summer 2019*
Supervisor: Alina Beygelzimer
Topic: Bandit Classification

Academia Sinica — Taipei, Taiwan
Research Intern — *Spring 2012*
Supervisor: Yi-Hsuan Yang
Topic: Music Information Retrieval

Stanford University — Palo Alto, CA
Research Intern (Undergraduate Visiting Research (UGVR) Program) — *Summer 2011*
Supervisor: Boris Murmann
Topic: Circuit Design for Medical Ultrasound

Honors and Awards

Finalist (Top 2 in CS), Best Dissertation Award, USC Viterbi Engineering School *2023*
Top Reviewers, NeurIPS *2022*
Prize for Excellence in Research with a Substantial Mathematical Component, Center for Applied Math Science, USC *2022*
Simons-Berkeley Research Fellowship, Simons Institute for the Theory of Computing *2022*
Best Paper Award, International Conference on Algorithmic Learning Theory *2022*
Best Paper Award, Conference on Learning Theory *2021*
Best Research Assistant Award, Computer Science Department, USC *2020*
Best Poster Award, SoCal Machine Learning Symposium *2019*
Taiwan-USC Scholarship, Ministry of Education, Taiwan *2017*
Tenth Place, ACM International Collegiate Programming Contest – Asia Regional *2010*

Publications (Conference Papers)

Near-Optimal Policy Optimization for Correlated Equilibrium in General-Sum Markov Games *AISTAT 2024*
(α-β) Yang Cai, Haipeng Luo, Chen-Yu Wei, Weiqiang Zheng (Oral)

Towards Optimal Regret in Linear MDPs with Bandit Feedback *ICLR 2024*
(α-β) Haolin Liu, Chen-Yu Wei, Julian Zimmert (Spotlight)

Bypassing the Simulator: Near-Optimal Adversarial Linear Contextual Bandits *NeurIPS 2023*
(α-β) Haolin Liu, Chen-Yu Wei, Julian Zimmert

Last-Iterate Convergent Policy Gradient Primal-Dual Methods for Constrained MDPs *NeurIPS 2023*
Dongsheng Ding*, Chen-Yu Wei*, Kaiqing Zhang*, Alejandro Ribeiro

No-Regret Online Reinforcement Learning with Adversarial Losses and Transitions *NeurIPS 2023*
Tiancheng Jin*, Junyan Liu*, Chloe Rouyer, William Chang, Chen-Yu Wei, Haipeng Luo

First- and Second-Order Bounds for Adversarial Linear Contextual Bandits *NeurIPS 2023*
Julia Olkhovskaya, Jack Mayo, Tim van Erven, Gergely Neu, Chen-Yu Wei

Uncoupled and Convergent Learning in Two-Player Zero-Sum Markov Games *NeurIPS 2023*
(α-β) Yang Cai, Haipeng Luo, Chen-Yu We*, Weiqiang Zheng

A Blackbox Approach to Best of Both Worlds in Bandits and Beyond *COLT 2023*
(α-β) Christoph Dann, Chen-Yu Wei, Julian Zimmert

Best of Both Worlds Policy Optimization *ICML 2023*
(α-β) Christoph Dann, Chen-Yu Wei, Julian Zimmert (Long talk)

Refined Regret for Adversarial MDPs with Linear Function Approximation *ICML 2023*
(α-β) Yan Dai, Haipeng Luo, Chen-Yu Wei, Julian Zimmert

A Unified Algorithm for Stochastic Path Problems *ALT 2023*
(α-β) Christoph Dann, Chen-Yu Wei, Julian Zimmert

Independent Policy Gradient for Large-Scale Markov Potential Games: Sharper Rates, Function Approximation, and Game-Agnostic Convergence *ICML 2022*
Dongsheng Ding*, Chen-Yu Wei*, Kaiqing Zhang*, Mihailo Jovanovic (Long talk)

Personalization Improves Privacy-Accuracy Tradeoffs in Federated Optimization *ICML 2022*
Alberto Bietti, Chen-Yu Wei, Miroslav Dudik, John Langford, Zhiwei Steven Wu

A Model Selection Approach for Corruption Robust Reinforcement Learning *ALT 2022*
Chen-Yu Wei, Christoph Dann, Julian Zimmert (Best Paper Award)

Decentralized Cooperative Reinforcement Learning with Hierarchical Information Structure *ALT 2022*
Hsu Kao, Chen-Yu Wei, Vijay Subramanian

Policy Optimization in Adversarial MDPs: Improved Exploration via Dilated Bonuses *NeurIPS 2021*
Haipeng Luo*, Chen-Yu Wei*, Chung-Wei Lee

Achieving Near Instance-Optimality and Minimax-Optimality in Stochastic and Adversarial Linear Bandits Simultaneously *ICML 2021*
(α-β) Chung-Wei Lee, Haipeng Luo, Chen-Yu Wei, Mengxiao Zhang, Xiaojin Zhang

Non-stationary RL without Prior Knowledge: An Optimal Black-box Approach *COLT 2021*
Chen-Yu Wei, Haipeng Luo (Best Paper Award)

Last-iterate Convergence of Decentralized Optimistic Gradient Descent/Ascent in Infinite-horizon Competitive Markov Games *COLT 2021*
Chen-Yu Wei, Chung-Wei Lee*, Mengxiao Zhang*, Haipeng Luo

Impossible Tuning Made Possible: A New Expert Algorithm and Its Applications *COLT 2021*
(α-β) Liyu Chen, Haipeng Luo, Chen-Yu Wei

Minimax Regret for Stochastic Shortest Path with Adversarial Costs and Known Transition *COLT 2021*
Liyu Chen, Haipeng Luo, Chen-Yu Wei

Learning Infinite-horizon Average-reward MDPs with Linear Function Approximation *AISTAT 2021*
Chen-Yu Wei, Mehdi Jafarnia-Jahromi, Haipeng Luo, Rahul Jain

Linear Last-iterate Convergence for Constrained Saddle-point Optimization *ICLR 2021*
Chen-Yu Wei, Chung-Wei Lee, Mengxiao Zhang, Haipeng Luo

Adversarial Online Learning with Changing Action Sets: Efficient Algorithms with Approximate Regret Bounds *ALT 2021*
Ehsan Emamjomeh-Zadeh*, Chen-Yu Wei*, Haipeng Luo, David Kempe

Bias No More: High-probability Data-dependent Regret Bounds for Adversarial Bandits and MDPs *NeurIPS 2020*
(α-β) Chung-Wei Lee, Haipeng Luo, Chen-Yu Wei, Mengxiao Zhang (Oral)

Taking a Hint: How to Leverage Loss Predictors in Contextual Bandits? *COLT 2020*
Chen-Yu Wei, Haipeng Luo, Alekh Agarwal

Model-free Reinforcement Learning in Infinite-horizon Average-reward Markov Decision Processes *ICML 2020*
Chen-Yu Wei, Mehdi Jafarnia-Jahromi, Haipeng Luo, Hiteshi Sharma, Rahul Jain

A New Algorithm for Non-stationary Contextual Bandits: Efficient, Optimal, and Parameter-free *COLT 2019*
(α-β) Yifang Chen, Chung-Wei Lee, Haipeng Luo, Chen-Yu Wei

Improved Path-length Regret Bounds for Bandits *COLT 2019*
(α-β) Sébastien Bubeck, Yuanzhi Li, Haipeng Luo, Chen-Yu Wei

Bandit Multiclass Linear Classification: Efficient Algorithms for the Separable Case *ICML 2019*
(α-β) Alina Beygelzimer, Dávid Pál, Balázs Szörényi, Devanathan Thiruvenkatachari, Chen-Yu Wei, Chicheng Zhang

Beating Stochastic and Adversarial Semi-bandits Optimally and Simultaneously *ICML 2019*
Julian Zimmert, Haipeng Luo, Chen-Yu Wei (Long talk)

Efficient Online Portfolio with Logarithmic Regret *NeurIPS 2018*
(α-β) Haipeng Luo, Chen-Yu Wei, Kai Zheng (Spotlight)

More Adaptive Algorithms for Adversarial Bandits *COLT 2018*
Chen-Yu Wei, Haipeng Luo

Efficient Contextual Bandits in Non-stationary Worlds *COLT 2018*
Haipeng Luo*, Chen-Yu Wei*, Alekh Agarwal, John Langford

Online Reinforcement Learning in Stochastic Games *NeurIPS 2017*
Chen-Yu Wei, Yi-Te Hong, Chi-Jen Lu

Tracking the Best Expert in Non-stationary Stochastic Environments *NeurIPS 2016*
Chen-Yu Wei, Yi-Te Hong, Chi-Jen Lu

PUBLICATIONS (WORKSHOP PAPERS)

Federated Residual Learning
NeurIPS Workshop on Scalability, Privacy, and Security in Federated Learning (Spicy-FL) *2020*
Chen-Yu Wei, Alekh Agarwal, John Langford

Analyzing the Variance of Policy Gradient Estimators for the Linear-Quadratic Regulator
NeurIPS Workshop on Optimization Foundations for Reinforcement Learning (OPTRL) *2019*
Sébastien Arnold*, James Preiss*, Chen-Yu Wei*, Marius Kloft

Understanding the Variance of Policy Gradient Estimators in Reinforcement Learning
SoCal Machine Learning Symposium (SoCalML) *2019*
Sébastien Arnold*, James Preiss*, Chen-Yu Wei*, Marius Kloft (Best Poster Award)

Invited Talks

Exploration Bonus for Policy Optimization, AI/ML Seminar, UVa CS *Sep. 2023*
Exploration Bonus for Policy Optimization, Distinguished Talk Series, Microsoft Research *Jan. 2023*
Some Recent Advances in the Theory of Online Decision Making, Special Topics, National Taiwan University *Oct. 2022*
Optimal Dynamic Regret for Bandits without Prior Knowledge, BLISS Seminar, UC Berkeley *Oct. 2022*
Optimal Dynamic Regret for Bandits without Prior Knowledge,D3P program workshop, Simons Institute *Sep. 2022*
Robust and Adaptive Online Decision Making, UMich ECE Seminar *Apr. 2022*
Robust and Adaptive Online Decision Making, UVa CS Seminar *Mar. 2022*
Non-stationary RL without Prior Knowledge: an Optimal Black-box Approach, COLT Best Paper Talk *Aug. 2021*
Linear Last-iterate Convergence of Constrained Saddle-point Optimization, UW Learning in Games Seminar *May. 2021*
Learning Infinite-horizon Average-reward MDPs with Linear Function Approximation, RL Virtual Seminars *Sep. 2020*
Bandit Multiclass Linear Classification: Efficient Algorithms for the Separable Case, Theory Day, UC Riverside *Jan. 2020*
Bandit Multiclass Linear Classification: Efficient Algorithms for the Separable Case, Theory Lunch, MSR *June 2019*
Beating Stochastic and Adversarial Semi-bandits Optimally and Simultaneously, ICML Long Talk *June 2019*
Efficient Online Portfolio with Logarithmic Regret, NeurIPS Spotlight Talk *Dec. 2018*

Academic Activities

UVA CS 4501: Introduction to Algorithmic Economics
Instructor *Spring 2024*
Co-teaching with Denis Nekipelov

UVA CS 6501: Reinforcement Learning
Instructor *Spring 2024*

USC CSCI 567: Machine Learning
Teaching Assistant *Fall 2021*
Instructor: Haipeng Luo

USC CSCI 270: Introduction to Algorithms and Theory of Computing course
Teaching Assistant *Spring 2021*
Instructor: Shawn Shamsian

USC CSCI 699: Introduction to Online Learning
Teaching Assistant *Fall 2017*
Instructor: Haipeng Luo

Reviewer for COLT, ALT, STOC, FOCS, NeurIPS, ICML, ICLR, AISTAT, AAAI, JMLR, MOR, TMLR