

Chung-Wei Lee

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– Research Interests

Machine Learning, with a focus on sequential decision problems (e.g., Online Learning, Bandits, and Reinforcement Learning) and their applications to Multi-agent Systems, Game Theory, Recommender Systems, and Artificial Intelligence.

– Education

University of Southern California (USC)

Aug 2018 –

- Ph.D. in Computer Science, advised by Prof. Haipeng Luo.

National Taiwan University (NTU)

Sep 2013 – Jan 2018

- B.S. in Electrical Engineering and Mathematics, minor in Computer Science.

– Work Experiences

Research Intern, WorldQuant, Taipei, Taiwan

Jun 2023 – Jul 2023

- Developed novel alpha strategies using price-volume, fundamental, and analyst data.

Research Intern, Google DeepMind Foundations Team, London, UK

Sep 2022 – Jan 2023

- Mentor: Yasin Abbasi-Yadkori; worked on contextual low-rank bandit; proposed a phase-elimination algorithm that first achieves near-optimal minimax regret bounds when rewards among contexts have low-rank structure.

Research Intern, Google Research Mudcats Team, Mountain View, CA

May 2022 – Aug 2022

- Mentor: Ofer Meshi; worked on hierarchical preference elicitation; proposed a novel approach based on POMDP and deep RL, which outperforms EVOI, the standard algorithm for the problem of hierarchical synthetic data.

Research Intern, Meta AI AutoML Team, Menlo Park, CA (virtual)

Jan 2022 – May 2022

- Mentor: Igor Markov; developed a novel training flow for tabular learning using self-distillation, knowledge distillation, and ensembles; improved model accuracies of all tested use cases (9+) on Looper, an ML infra at Meta.

Research Intern, ByteDance AML Team, Mountain View, CA (virtual)

May 2021 – Aug 2021

- Mentor: Ji Yang; worked on recommender systems with multiple objectives; proposed a generic multi-objective contextual bandit framework and a novel algorithm based on minimax optimization for the problem.

– Selected Publications (full list at [Google Scholar](#))

- Ioannis Anagnostides, Gabriele Farina, Christian Kroer, **Chung-Wei Lee**, Haipeng Luo, Tuomas Sandholm, Uncoupled Learning Dynamics with $O(\log T)$ Swap Regret in Multiplayer Games.. Conference on Neural Information Processing Systems (**NeurIPS**) 2022. (Oral) [[arXiv](#)]
- Gabriele Farina, Ioannis Anagnostides, Haipeng Luo, **Chung-Wei Lee**, Christian Kroer, Tuomas Sandholm, Near-Optimal No-Regret Learning Dynamics for General Convex Games. Conference on Neural Information Processing Systems (**NeurIPS**) 2022. [[arXiv](#)]
- Gabriele Farina, **Chung-Wei Lee**, Haipeng Luo, Christian Kroer, Kernelized Multiplicative Weights for 0/1-Polyhedral Games: Bridging the Gap Between Learning in Extensive-Form and Normal-Form Games. International Conference on Machine Learning (**ICML**) 2022. [[arXiv](#)]
- **Chung-Wei Lee**, Christian Kroer, Haipeng Luo, Last-iterate Convergence in Extensive-Form Games. Conference on Neural Information Processing Systems (**NeurIPS**) 2021. [[arXiv](#)]
- Haipeng Luo, Chen-Yu Wei, **Chung-Wei Lee**, Policy Optimization in Adversarial MDPs: Improved Exploration via Dilated Bonuses. Conference on Neural Information Processing Systems (**NeurIPS**) 2021. [[arXiv](#)]

- **Chung-Wei Lee**, Haipeng Luo, Chen-Yu Wei, Mengxiao Zhang, Xiaojin Zhang, Achieving Near Instance-Optimality and Minimax-Optimality in Stochastic and Adversarial Linear Bandits Simultaneously. International Conference on Machine Learning (ICML) 2021. [arXiv]
- Chen-Yu Wei, **Chung-Wei Lee**, Mengxiao Zhang, Haipeng Luo, Last-iterate Convergence of Decentralized Optimistic Gradient Descent/Ascent in Infinite-horizon Competitive Markov Games. Annual Conference on Learning Theory (COLT) 2021. [arXiv]
- Chen-Yu Wei, **Chung-Wei Lee**, Mengxiao Zhang, Haipeng Luo, Linear Last-iterate Convergence in Constrained Saddle-point Optimization. International Conference on Learning Representations (ICLR) 2021. [arXiv]
- **Chung-Wei Lee**, Haipeng Luo, Chen-Yu Wei, Mengxiao Zhang, Bias No More: High-probability Data-dependent Regret Bounds for Adversarial Bandits and MDPs. Conference on Neural Information Processing Systems (NeurIPS) 2020. (Oral) [arXiv]
- **Chung-Wei Lee**, Haipeng Luo, Mengxiao Zhang, A Closer Look at Small-loss Bounds for Bandits with Graph Feedback. Annual Conference on Learning Theory (COLT) 2020. [arXiv]
- Yifang Chen, **Chung-Wei Lee**, Haipeng Luo, Chen-Yu Wei, A New Algorithm for Non-stationary Contextual Bandits: Efficient, Optimal, and Parameter-free. Annual Conference on Learning Theory (COLT) 2019. [arXiv]
- **Chung-Wei Lee**, Wei Fang, Chih-Kuan Yeh, Yu-Chiang Frank Wang, Multi-Label Zero-Shot Learning with Structured Knowledge Graphs. IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2018. [arXiv]

– Honors & Awards

COLT 2019 Travel Award

Jun 2019

- Awarded to the student authors participating the COLT conference.

USC Annenberg Fellowship

Aug 2018 – Jul 2019

- Fellowship support for the PhD study.

Presidential Award (Twice)

Spring 2014, Spring 2016

- Awarded to the students with the top 5% GPA in the department for that semester at NTU.

– Teaching & Mentoring

Teaching Assistant, Analysis of Algorithms (CSCI 570) at USC

Spring 2023

Teaching Assistant, Machine Learning (CSCI 567) at USC

Fall 2021

Teaching Assistant, Introduction to Algorithms and the Theory of Computing (CSCI 270) at USC

Fall 2020

Teaching Assistant, Theoretical Machine Learning (CSCI 699) at USC

Fall 2019

Research Mentor, USC Viterbi SHINE Program

Jun 2019 – Aug 2019

- mentored high school student research, specifically, building superhuman AI in repeated Rock–paper–scissors games.

– Service

Reviewer: NeurIPS 2019-2023; ICML 2020-2023; ICLR 2021; COLT 2023; KDD (MARBLE workshop) 2021.

– Skills

Programming Languages: Python (PyTorch & TensorFlow), C/C++, MATLAB, \LaTeX

Languages: Mandarin Chinese (native), English (proficient)

– Selected Coursework

- EE department** Probability and Statistic, Data Structure and Programming, Advanced Algorithms†, Machine Learning and Having It Deep and Structured†, Information Theory†, Data Mining†.
- Math department** Algebra (Honor Program), Introduction to Mathematical Analysis, Linear Algebra, Introduction to Computational Mathematics.
- CS department** Formal Languages and Automata Theory, Algorithm Design and Analysis, Computer Architecture, Computer Networks, Advanced Analysis of Algorithms†, Convex and Combinatorial Optimization†, Approximation Algorithms†, Introduction to Cryptography†.
- DSO department** Statistical Learning Theory†.

† Graduate Level Courses