

# NAN JIANG

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## CONTACT

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## EMPLOYMENT

### University of Illinois at Urbana-Champaign

Associate Professor of Computer Science 2024 – present

Assistant Professor of Computer Science 2018 – 2024

### Microsoft Research, New York City

Postdoctoral Researcher 2017 – 2018

## EDUCATION

PhD, Computer Science and Engineering 2011 – 2017

University of Michigan, Ann Arbor, MI, USA

Bachelor of Engineering, Department of Automation 2007 – 2011

Tsinghua University, Beijing, China

## MONOGRAPH

**Reinforcement Learning: Theory and Algorithms.** (*working draft*)

Alekh Agarwal, Nan Jiang, Sham Kakade, Wen Sun.

## AWARDS AND GRANTS

Google Research Scholar Award Mar. 2024

Sloan Research Fellowship Feb. 2024

ICML 2022 Outstanding Paper Runner-Up July 2022

NSF CAREER Award Mar. 2022

Title: Theoretical Foundations of Offline Reinforcement Learning.

Engineering Council Outstanding Advisor Award Mar. 2022

Adobe Data Science Research Award Sept. 2021

NSF AI Institute for Future Edge Networks and Distributed Intelligence Oct. 2021

Role: Co-PI.

ARL IoBT Collaborative Research Alliance Feb. 2021

Role: Co-PI on Task “Enabling the Safe and Responsible Use of RL”

Rackham Predoctoral Fellowship Mar. 2016

AAMAS 2015 Best Paper Award May 2015

## SERVICES

- Journal Editing  
Editor: Foundations and Trends in Machine Learning (FnT in ML)  
Action Editor: Journal of Machine Learning Research (JMLR)
- Senior Area Chair: ICLR'24–25, ICML'25, RLC'25
- Area Chair/Senior PC: ICML'19–24, NeurIPS'20–24, COLT'20, AAAI'19, AISTATS'19
- Reviewer: ICML'16–18, IJCAI'16, AAAI'17–18, AISTATS'17–18, NeurIPS'17–19, ALT'15'17, COLT'16, ICLR'18, JMLR, MathOR, JAIR, MLJ
- Grant Panelist: NSF 2019, 2022, 2024
- Event (Co-)Organization:  
RL Theory Virtual Seminar (co-host) 2021, 2023  
NeurIPS 2021 Workshop on Offline Reinforcement Learning Dec. 2021  
Workshop on Advances in Theory and Algorithms for Deep Reinforcement Learning at ICERM Aug. 2021
- External Committees: ICLR-24 Award Selection Committee
- Internal Committees: Graduate Admissions 2021–2023  
Graduate Study Committee 2019–  
Subcommittee for Course Proposal Evaluation, College of Engineering 2020  
Undergraduate Study Committee 2018–2019

## INVITED TALKS

- Guest Lecture, MIT 6.7920 “RL: Foundations and Methods”** Nov. 2024  
Host: Cathy Wu
- Simons Institute Program on Modern Paradigms in Generalization** Sept. 2024  
Workshop on Emerging Generalization Settings Host: Andrej Risteski
- Conference on Information Sciences and Systems (CISS), 2024** Mar. 2024  
Session: Modern Reinforcement Learning Host: Chi Jin
- IISc Workshop: Reinforcement Learning: Recent Advances and Challenges Ahead** Feb. 2024  
Keynote Speaker Host: Gagan Thoppe
- University of Michigan, EECS CSP seminar** Nov. 2023  
Host: Lei Ying
- Carnegie Mellon University, SCS Special Seminar** Mar. 2023  
Host: Andrej Risteski
- Tutorial Lectures, Workshop on Machine Learning and Its Applications at NUS** Oct. 2022  
Topic: Offline RL Theory
- International Conference on Continuous Optimization (ICCOPT) 2022** July 2022  
Session: Stochastic Algorithms Chair: Ashwin Pananjady
- Microsoft Research MTL Seminar** July 2022  
Host: Geoff Gordon

<b>New Models in Online Decision Making for Real-World Applications</b> Part of TTIC 2022 Summer Workshop Program	July 2022
<b>Reinforcement Learning and Decision Making (RLDM)</b> Workshop on RL as a Model of Agency	June 2022
<b>Conference on Information Sciences and Systems</b> Session: Frontiers of Theoretical Reinforcement Learning	Mar. 2022 Host: Chi Jin
<b>Vector Institute</b> Host: Amir-massoud Farahmand	Aug. 2021
<b>ICERM Workshop on Advances in Theory and Algorithms for Deep RL</b> Organizers: Nan Jiang, Sanjay Shakkottai, R. Srikant, Mengdi Wang	Aug. 2021
<b>Learning Theory Seminar, Google Research NYC</b> Host: Christoph Dann	July 2021
<b>Microsoft Research Asia, Machine Learning Group</b> Host: Li Zhao	June 2021
<b>DeepMind, RL Team</b> Host: Junhyuk Oh	Mar. 2021
<b>Online Data Science Seminar, LSE Stats</b> Host: Chengchun Shi	Feb. 2021
<b>NeurIPS Workshop on Offline Reinforcement Learning</b> Organizers: Aviral Kumar, Rishabh Agarwal, George Tucker, Lihong Li, Doina Precup	Dec. 2020
<b>Simons Institute Workshop on RL from Batch Data and Simulation</b> Organizers: Mengdi Wang, Emma Brunskill, Sean Meyn	Nov. 2020
<b>RL Theory Virtual Seminars</b> Hosts: Gergely Neu, Ciara Pike-Burke, Csaba Szepesvári	June 2020
<b>Simons Institute Workshop: Emerging Challenges in Deep Learning</b> Host: Matus Telgarsky	Aug. 2019
<b>Annual ShanghaiTech Symposium on Information Science and Technology</b> Host: Ziyu Shao	July 2019
<b>2nd Machine Learning Theory Workshop at Peking University</b> Host: Liwei Wang	June 2019
<b>Workshop on Machine Learning for All-Inclusive Finance at ICML-19 Expo</b> Organizer: Ant Financial Service Group	June 2019
<b>MSR Talk Series, Microsoft Research Redmond</b> Host: Alekh Agarwal	May. 2019
<b>Statistics Research Colloquium, Purdue University</b> Host: Guang Cheng	Jan. 2019
<b>AI Seminar at CSE, University of Michigan</b> Host: Satinder Singh	Nov. 2018

<b>Seminar on Decision, Optimization, and Learning (DOL) at Caltech</b> Host: Yisong Yue	June 2018
<b>Machine Learning Seminar at UIUC</b> Host: Girish Chowdhary	Apr. 2018
<b>Conference on Information Sciences and Systems</b> Session: Algorithmic Reinforcement Learning	Mar. 2018 Host: Mengdi Wang
<b>DARPA Workshop: <i>Diverse Ways of Inferring Missions</i></b> Invited to present the work on repeated inverse RL	Oct. 2017
<b>Job Talk: <i>New results in statistical reinforcement learning</i></b> <b>University of Illinois Urbana-Champaign</b> <b>University of California, Santa Barbara</b> <b>University of Maryland, College Park</b> <b>McGill University</b> <b>University of Massachusetts Amherst</b> <b>Toyota Technological Institute at Chicago</b> <b>University of Minnesota Twin Cities</b>	Feb. – Mar. 2017 Host: Matus Telgarsky Host: Xifeng Yan Host: Marine Carpuat Host: Joelle Pineau Host: Akshay Krishnamurthy Host: Matthew Walter Host: Arindam Banerjee
<b>Microsoft Research, NYC</b> Host: John Langford	Jan. 2017
<b>Carnegie Mellon University, Machine Learning Department</b> Host: Emma Brunskill	Nov. 2016
<b>IBM Thomas J. Watson Research Center</b> Host: Kartik Talamadupula	Aug. 2016
<b>International Joint Conference on Artificial Intelligence</b> Invited to present the AAMAS 2015 paper at the Sister Conference Best Paper track.	July 2016
<b>International Conference on Robotics and Automation</b> Invited to present the AAAI 2015 paper at the 50th Anniversary of Shakey.	May 2015
<b>Carnegie Mellon University, Machine Learning Department</b> Host: Emma Brunskill	Mar. 2015

## PREPRINTS

**Offline Reinforcement Learning in Large State Spaces: Algorithms and Guarantees.**  
([pdf](#))  
Nan Jiang, Tengyang Xie.  
(Invited submission to STS) *Statistical Science Journal, Special Issue on Reinforcement Learning.*

## PUBLICATIONS

**Statistical Tractability of Off-policy Evaluation of History-dependent Policies in POMDPs.**  
([pdf](#))  
Yuheng Zhang, Nan Jiang.  
(ICLR'25) *13th International Conference on Learning Representations.*

**Iterative Nash Policy Optimization: Aligning LLMs with General Preferences via No-Regret Learning.** ([pdf](#))

Yuheng Zhang, Dian Yu, Baolin Peng, Linfeng Song, Ye Tian, Mingyue Huo, Nan Jiang, Haitao Mi, Dong Yu.  
(ICLR'25) *13th International Conference on Learning Representations*.

**On the Curses of Future and History in Future-dependent Value Functions for Off-policy Evaluation.** ([pdf](#))

Yuheng Zhang, Nan Jiang.  
(NeurIPS'24) *38th Neural Information Processing Systems*.

**Reinforcement Learning Under Latent Dynamics: Toward Statistical and Algorithmic Modularity.** ([pdf](#))

Philip Amortila, Dylan J Foster, Nan Jiang, Akshay Krishnamurthy, Zakaria Mhammedi.  
(NeurIPS'24) *38th Neural Information Processing Systems*, with *oral presentation*.

**Occupancy-based Policy Gradient: Estimation, Convergence, and Optimality.** ([pdf](#))

Audrey Huang, Nan Jiang.  
(NeurIPS'24) *38th Neural Information Processing Systems*.

**Online Iterative Reinforcement Learning from Human Feedback with General Preference Model.** ([pdf](#))

Chenlu Ye, Wei Xiong, Yuheng Zhang, Hanze Dong, Nan Jiang, Tong Zhang.  
(NeurIPS'24) *38th Neural Information Processing Systems*.

**RLHF Workflow: From Reward Modeling to Online RLHF.** ([pdf](#))

Hanze Dong, Wei Xiong, Bo Pang, Haoxiang Wang, Han Zhao, Yingbo Zhou, Nan Jiang, Doyen Sahoo, Caiming Xiong, Tong Zhang.  
(TMLR'24) *Transactions on Machine Learning Research*.

**Mitigating the Alignment Tax of RLHF.** ([pdf](#))

Yong Lin, Hangyu Lin, Wei Xiong, Shizhe Diao, Jianmeng Liu, Jipeng Zhang, Rui Pan, Haoxiang Wang, Wenbin Hu, Hanning Zhang, Hanze Dong, Renjie Pi, Han Zhao, Nan Jiang, Heng Ji, Yuan Yao, Tong Zhang.  
(EMNLP'24) *The 2024 Conference on Empirical Methods in Natural Language Processing*.

**Word Embeddings Are Steers for Language Models.** ([pdf](#))

Chi Han, Jialiang Xu, Manling Li, Yi Fung, Chenkai Sun, Nan Jiang, Tarek Abdelzaher, Heng Ji.  
(ACL'24 *Outstanding Paper*) *The 62nd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)*.

**Non-adaptive Online Finetuning for Offline Reinforcement Learning.** ([pdf](#))

Audrey Huang, Mohammad Ghavamzadeh, Nan Jiang, Marek Petrik.  
(RLC'24) *The 1st Reinforcement Learning Conference*.

**Word Embeddings Are Steers for Language Models.** ([pdf](#))

Chi Han, Jialiang Xu, Manling Li, Yi Fung, Chenkai Sun, Nan Jiang, Tarek F. Abdelzaher, Heng Ji.  
(ACL'24) *The 62nd Annual Meeting of the Association for Computational Linguistics*.

**Iterative Preference Learning from Human Feedback: Bridging Theory and Practice for RLHF under KL-constraint.** ([pdf](#))

Wei Xiong, Hanze Dong, Chenlu Ye, Ziqi Wang, Han Zhong, Heng Ji, Nan Jiang, Tong

Zhang.

(ICML'24) *41st International Conference on Machine Learning*.

**Harnessing Density Ratios for Online Reinforcement Learning.** ([pdf](#))

Philip Amortila, Dylan Foster, Nan Jiang, Ayush Sekhari, Tengyang Xie.

(ICLR'24) *The 11th International Conference on Learning Representations*, with *spotlight*.

**Model-free Representation Learning and Exploration in Low-rank MDPs.** ([pdf](#))

Aditya Modi, Jinglin Chen, Akshay Krishnamurthy, Nan Jiang, Alekh Agarwal.

(JMLR'24) *Journal of Machine Learning Research*.

**Marginalized Importance Sampling for Off-Environment Policy Evaluation.** ([pdf](#))

Pulkit Katdare, Nan Jiang, Katherine Driggs-Campbell.

(CoRL'23) *7th Conference on Robot Learning*.

**Future-Dependent Value-Based Off-Policy Evaluation in POMDPs.** ([pdf](#))

Masatoshi Uehara, Haruka Kiyohara, Andrew Bennett, Victor Chernozhukov, Nan Jiang, Nathan Kallus, Chengchun Shi, Wen Sun.

(NeurIPS'23) *37th Neural Information Processing Systems*, with *spotlight*.

**Adversarial Model for Offline Reinforcement Learning.** ([pdf](#))

Tengyang Xie, Mohak Bhardwaj, Nan Jiang, Ching-An Cheng.

(NeurIPS'23) *37th Neural Information Processing Systems*.

**Reinforcement Learning in Low-Rank MDPs with Density Features.** ([pdf](#))

Audrey Huang, Jinglin Chen, Nan Jiang.

(ICML'23) *40th International Conference on Machine Learning*.

**The Optimal Approximation Factors in Misspecified Off-Policy Value Function Estimation.** ([pdf](#))

Philip Amortila, Nan Jiang, Csaba Szepesvari.

(ICML'23) *40th International Conference on Machine Learning*.

**Offline Learning in Markov Games with General Function Approximation.** ([pdf](#))

Yuheng Zhang, Yu Bai, Nan Jiang.

(ICML'23) *40th International Conference on Machine Learning*.

**The Role of Coverage in Online Reinforcement Learning.** ([pdf](#))

Tengyang Xie, Dylan Foster, Yu Bai, Nan Jiang, Sham Kakade.

(ICLR'23) *The 11th International Conference on Learning Representations*.

**Explaining RL Decisions with Trajectories.** ([pdf](#))

Shripad Vilasrao Deshmukh, Arpan Dasgupta, Balaji Krishnamurthy, Nan Jiang, Chirag Agarwal, Georgios Theocharous, Jayakumar Subramanian.

(ICLR'23) *The 11th International Conference on Learning Representations*.

**A Few Expert Queries Suffices for Sample-Efficient RL with Resets and Linear Value Approximation.** ([pdf](#))

Philip Amortila, Nan Jiang, Dhruv Madeka, Dean P. Foster.

(NeurIPS'22) *36th Neural Information Processing Systems*.

**Interaction-Grounded Learning with Action-inclusive Feedback.** ([pdf](#))

Tengyang Xie, Akanksha Saran, Dylan J Foster, Lekan Molu, Ida Momennejad, Nan Jiang,

Paul Mineiro, John Langford.  
(NeurIPS'22) *36th Neural Information Processing Systems*.

**On the Statistical Efficiency of Reward-Free Exploration in Non-Linear RL.** (pdf)  
Jinglin Chen, Aditya Modi, Akshay Krishnamurthy, Nan Jiang, Alekh Agarwal.  
(NeurIPS'22) *36th Neural Information Processing Systems*.

**Tiered Reinforcement Learning: Pessimism in the Face of Uncertainty and Constant Regret.** (pdf)  
Jiawei Huang, Li Zhao, Tao Qin, Wei Chen, Nan Jiang, Tie-Yan Liu.  
(NeurIPS'22) *36th Neural Information Processing Systems*.

**Beyond the Return: Off-policy Function Estimation under User-specified Error-measuring Distributions.** (pdf)  
Audrey Huang, Nan Jiang.  
(NeurIPS'22) *36th Neural Information Processing Systems*.

**Offline Reinforcement Learning Under Value and Density-Ratio Realizability: the Power of Gaps.** (pdf)  
Jinglin Chen, Nan Jiang.  
(UAI'22) *38th Conference on Uncertainty in Artificial Intelligence*.

**Offline Reinforcement Learning with Realizability and Single-policy Concentrability.** (pdf)  
Wenhao Zhan, Baihe Huang, Audrey Huang, Nan Jiang, Jason D. Lee.  
(COLT'22) *35th Annual Conference on Learning Theory*.

**Adversarially Trained Actor Critic for Offline Reinforcement Learning.** (pdf)  
Ching-An Cheng, Tengyang Xie, Nan Jiang, Alekh Agarwal.  
(ICML'22 **Outstanding Paper Runner-up**) *39th International Conference on Machine Learning*.

**A Minimax Learning Approach to Off-Policy Evaluation in Partially Observable Markov Decision Processes.** (pdf) Chengchun Shi, Masatoshi Uehara, Jiawei Huang, Nan Jiang.  
(ICML'22) *39th International Conference on Machine Learning*.

**Towards Deployment-Efficient Reinforcement Learning: Lower Bound and Optimality.** (pdf)  
Jiawei Huang, Jinglin Chen, Li Zhao, Tao Qin, Nan Jiang, Tie-Yan Liu.  
(ICLR'22) *The 10th International Conference on Learning Representations*.

**On the Convergence Rate of Off-Policy Policy Optimization Methods with Density-Ratio Correction.** (pdf)  
Jiawei Huang, Nan Jiang.  
(AISTATS'22) *The 25th International Conference on Artificial Intelligence and Statistics; also presented at Offline RL Workshop at NeurIPS-20*.

**Bellman-consistent Pessimism for Offline Reinforcement Learning.** (pdf)  
Tengyang Xie, Ching-An Cheng, Nan Jiang, Paul Mineiro, Alekh Agarwal.  
(NeurIPS'21) *35th Neural Information Processing Systems, with oral presentation (less than 1%)*.

**Towards Hyperparameter-free Policy Selection for Offline Reinforcement Learning.** (pdf)  
Siyuan Zhang, Nan Jiang.  
(NeurIPS'21) *35th Neural Information Processing Systems*.

**Policy Finetuning: Bridging Sample-Efficient Offline and Online Reinforcement Learning.** ([pdf](#)) Tengyang Xie, Nan Jiang, Huan Wang, Caiming Xiong, Yu Bai.  
(NeurIPS'21) *35th Neural Information Processing Systems*.

**Empirical Study of Off-Policy Policy Evaluation for Reinforcement Learning.** ([pdf](#))  
Cameron Voloshin, Hoang Le, Nan Jiang, Yisong Yue.  
(NeurIPS'21) *35th Neural Information Processing Systems, Datasets and Benchmarks Track*

**On Query-efficient Planning in MDPs under Linear Realizability of the Optimal State-value Function.** ([pdf](#)) Gellert Weisz, Philip Amortila, Barnabás Janzer, Yasin Abbasi-Yadkori, Nan Jiang, Csaba Szepesvári.  
(COLT'21) *The 34th Annual Conference on Learning Theory*.

**Batch Value-function Approximation with Only Realizability.** ([pdf](#))  
Tengyang Xie, Nan Jiang.  
(ICML'21) *38th International Conference on Machine Learning*.

**Minimax Model Learning.** ([pdf](#))  
Cameron Voloshin, Nan Jiang, Yisong Yue.  
(AISTATS'21) *24th International Conference on Artificial Intelligence and Statistics*.

**Improved Worst-Case Regret Bounds for Randomized Least-Squares Value Iteration.** ([pdf](#)) Priyank Agrawal, Jinglin Chen, Nan Jiang.  
(AAAI'21) *35th AAAI Conference on Artificial Intelligence*.

**Minimax Value Interval for Off-Policy Evaluation and Policy Optimization.** ([pdf](#))  
Nan Jiang, Jiawei Huang.  
(NeurIPS'20) *34rd Neural Information Processing Systems*.

**Minimax Weight and Q-function Learning for Off-Policy Evaluation.** ([pdf](#))  
Masatoshi Uehara, Jiawei Huang, Nan Jiang.  
(ICML'20) *37th International Conference on Machine Learning*.

**From Importance Sampling to Doubly Robust Policy Gradient.** ([pdf](#))  
Jiawei Huang, Nan Jiang.  
(ICML'20) *37th International Conference on Machine Learning*.

**$Q^*$  Approximation Schemes for Batch RL: A Theoretical Comparison.** ([pdf](#))  
Tengyang Xie, Nan Jiang.  
(UAI'20) *Conference on Uncertainty in Artificial Intelligence*.

**Sample Complexity of RL using Linearly Combined Model Ensembles.** ([pdf](#))  
Aditya Modi, Nan Jiang, Ambuj Tewari, Satinder Singh.  
(AISTATS'20) *23rd International Conference on Artificial Intelligence and Statistics*.

**Provably Efficient Q-Learning with Low Switching Cost.** ([pdf](#))  
Yu Bai, Tengyang Xie, Nan Jiang, Yu-Xiang Wang.  
(NeurIPS'19) *33rd Neural Information Processing Systems*.

**Information-Theoretic Considerations in Batch Reinforcement Learning.** ([pdf](#))  
Jinglin Chen, Nan Jiang.  
(ICML'19) *36th International Conference on Machine Learning*.



**Provably Efficient RL with Rich Observations via Latent State Decoding.** ([pdf](#))

Simon Du, Akshay Krishnamurthy, Nan Jiang, Alekh Agarwal, Miroslav Dudík, John Langford.

(ICML'19) *36th International Conference on Machine Learning*.

**Model-based RL in Contextual Decision Processes: PAC bounds and Exponential Improvements over Model-free Approaches.** ([pdf](#))

Wen Sun, Nan Jiang, Akshay Krishnamurthy, Alekh Agarwal, John Langford.

(COLT'19) *32nd Annual Conference on Learning Theory*.

**On Oracle-Efficient PAC Reinforcement Learning with Rich Observations.** ([pdf](#))

Christoph Dann, Nan Jiang, Akshay Krishnamurthy, Alekh Agarwal, John Langford, Robert E. Schapire.

(NeurIPS'18) *32nd Neural Information Processing Systems*, with *spotlight presentation*; also presented at: *12th NYAS Machine Learning Symposium*.

**Completing State Representations Using Spectral Learning.** ([pdf](#))

Nan Jiang, Alex Kulesza, Satinder Singh.

(NeurIPS'18) *32nd Neural Information Processing Systems*.

**Open Problem: The Dependence of Sample Complexity Lower Bounds on Planning Horizon.** ([pdf](#))

Nan Jiang, Alekh Agarwal.

(COLT'18) *31st Annual Conference on Learning Theory*.

**Hierarchical Imitation and Reinforcement Learning.** ([pdf](#))

Hoang M. Le, Nan Jiang, Alekh Agarwal, Miroslav Dudík, Yisong Yue, Hal Daumé III.

(ICML'18) *35th International Conference on Machine Learning*.

**Markov Decision Processes with Continuous Side Information.** ([pdf](#))

Aditya Modi, Nan Jiang, Satinder Singh, Ambuj Tewari.

(ALT'18) *29th International Conference on Algorithmic Learning Theory*.

**PAC Reinforcement Learning with an Imperfect Model.** ([pdf](#))

Nan Jiang.

(AAAI'18) *32nd AAAI Conference on Artificial Intelligence*.

**Repeated Inverse Reinforcement Learning.** ([pdf](#))

Kareem Amin\*, Nan Jiang\*, Satinder Singh. (\*Equal contribution.)

(NeurIPS'17) *31st Neural Information Processing Systems*, with *spotlight presentation*; also presented at *Reinforcement Learning and Decision Making 2017*.

**Contextual Decision Processes with Low Bellman Rank are PAC-Learnable.** ([pdf](#))

Nan Jiang, Akshay Krishnamurthy, Alekh Agarwal, John Langford, Robert E. Schapire.

(ICML'17) *34th International Conference on Machine Learning*; also presented at *11th NYAS Machine Learning Symposium (with presentation award)*.

**Doubly Robust Off-policy Value Evaluation for Reinforcement Learning.** ([pdf](#))

Nan Jiang, Lihong Li.

(ICML'16) *33rd International Conference on Machine Learning*; also presented in *Workshop "Machine Learning for eCommerce" in Neural Information Processing Systems 2015*.

**On Structural Properties of MDPs that Bound Loss due to Shallow Planning.** ([pdf](#))

Nan Jiang, Satinder Singh, Ambuj Tewari.  
*(IJCAI'16) 25th International Joint Conference on Artificial Intelligence.*

**Improving Predictive State Representations via Gradient Descent.** ([pdf](#))

Nan Jiang, Alex Kulesza, Satinder Singh.  
*(AAAI'16) 30th AAAI Conference on Artificial Intelligence.*

**Abstraction Selection in Model-based Reinforcement Learning.** ([pdf](#))

Nan Jiang, Alex Kulesza, Satinder Singh.  
*(ICML'15) 32nd International Conference on Machine Learning.*

**The Dependence of Effective Planning Horizon on Model Accuracy.** ([pdf](#))

Nan Jiang, Alex Kulesza, Satinder Singh, Richard Lewis.  
*(AAMAS'15 **best paper**) 14th International Conference on Autonomous Agents and Multiagent Systems.*

**Low-Rank Spectral Learning with Weighted Loss Functions.** ([pdf](#))

Alex Kulesza, Nan Jiang, Satinder Singh.  
*(AISTATS'15) 18th International Conference on Artificial Intelligence and Statistics.*

**Spectral Learning of Predictive State Representations with Insufficient Statistics.** ([pdf](#))

Alex Kulesza, Nan Jiang, Satinder Singh.  
*(AAAI'15) 29th AAAI Conference on Artificial Intelligence.*

**Improving UCT Planning via Approximate Homomorphisms.** ([pdf](#))

Nan Jiang, Satinder Singh, Richard Lewis.  
*(AAMAS'14) 13th International Conference on Autonomous Agents and Multiagent Systems.*

## WORKSHOP PAPERS AND TECHNICAL NOTES

**A Note on Loss Functions and Error Compounding in Model-based Reinforcement Learning.** ([pdf](#))

Nan Jiang.

**Finite Sample Analysis of Minimax Offline Reinforcement Learning: Completeness, Fast Rates and First-Order Efficiency.** ([pdf](#))

Masatoshi Uehara, Masaaki Imaizumi, Nan Jiang, Nathan Kallus, Wen Sun, Tengyang Xie.

**A Variant of the Wang-Foster-Kakade Lower Bound for the Discounted Setting.** ([pdf](#))

Philip Amortila, Nan Jiang, Tengyang Xie.

**On Value Functions and the Agent-Environment Boundary.** ([pdf](#))

Nan Jiang.

**Deterministic Bellman Residual Minimization.**

Ehsan Saleh, Nan Jiang.  
*OptRL Workshop at NeurIPS'19.*

## PROFESSIONAL MEMBERSHIPS

Member of Association for the Advancement of Artificial Intelligence  
Member of Association for Computing Machinery

Since 2018  
Since 2018

## TEACHING (UIUC)

- CS 542 Statistical Reinforcement Learning (F21, F22, & F23 **teaching excellence**)
- CS 443 Reinforcement Learning (S23, S24 **teaching excellence**)
- CS 598 Special Topics: Statistical Reinforcement Learning (F18 & S19 **teaching excellence**, F20 **outstanding**)
- CS 498 Special Topics: Reinforcement Learning (F19; S21 **teaching excellence**)

## STUDENT ADVISING

### • PhD Theses Advised

Jinglin Chen. 2023.

*Reinforcement Learning under General Function Approximation and Novel Interaction Settings.*

Tengyang Xie. 2023.

*Reinforcement Learning with Offline Data: Foundations and Algorithms.*

### • Current PhD Students

Philip Amortila, Audrey Huang, Yuheng Zhang, Wei Xiong

### • Master Theses Advised

Priyank Agrawal. 2021.

*Improved worst-case regret bounds for randomized least-squares value iteration.*

Siyuan Zhang. 2021.

*Batch value function tournament for offline policy selection in reinforcement learning.*

### • Undergraduate Theses Advised

Siyuan Zhang

Senior Thesis, 2019

Topic: Improving predictive state representations by optimizing transformation matrices.

### • PhD Thesis Committee

Junzhe Wu (UIUC)

Advisor: Girish Chowdhary

Germano Gabbianelli (Universitat Pompeu Fabra)

Advisor: Gergely Neu

Ziping Xu (University of Michigan)

Advisor: Ambuj Tewari

Yuxuan Li (UIUC)

Advisor: Alfred Chong

Andrew Patterson (McGill)

Advisor: Martha White

Muhammad Aneeq Uz Zaman (UIUC)

Advisors: Tamer Basar, Geir Dullerud

Ehsan Saleh (UIUC)

Advisors: Timothy Bretl, Matthew West

Yikun Ban (UIUC)

Advisor: Jingrui He

Masatoshi Uehara (Cornell)

Advisor: Nathan Kallus

Unnat Jain (UIUC)

Advisors: Svetlana Lazebnik, Alexander Schwing

Belinda Tzen (UIUC)

Advisor: Maxim Raginsky

Aditya Modi (University of Michigan)

Advisors: Ambuj Tewari, Satinder Singh

Iou-Jen Liu (UIUC)

Advisor: Alexander Schwing

### • Visiting Students

Pai Liu

Summer REU, 2024

Topic: Offline model selection.

Youheng Zhu

Summer REU, 2024

Topic: RL theory.  
Jinghan Liu Summer REU, 2024  
Topic: Offline model selection.

Shivangi Agarwal Visiting PhD Student, 2024  
Topic: AI for networks

Yash Nair Summer REU, 2020  
Topic: Off-policy evaluation in POMDPs.

Masatoshi Uehara Visiting PhD Student, 2019  
Topic: Marginalized importance sampling for off-policy evaluation.

Jiawei Huang Visiting Student, 2019  
Topic: Doubly robust policy gradient.

Kaiqian Han Summer REU, 2019  
Topic: Question & answer network for model-based RL.

Jiachen Hu Summer REU, 2019  
Topic: Concurrent exploration in RL.