

NAN JIANG

CONTACT

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EDUCATION

PhD, Computer Science and Engineering 2011 – 2017
University of Michigan, Ann Arbor, MI, USA
Division: Artificial Intelligence Advisor: Satinder Singh

Bachelor of Engineering, Department of Automation 2007 – 2011
Tsinghua University, Beijing, China
Division: Control Theory and Application Graduate with Distinction

EMPLOYMENT

Microsoft Research, New York City 2017 – 2018
Position: Postdoctoral Researcher. Machine Learning Group

Microsoft Research, New York City Summer 2016
Position: Research Intern. Mentor: John Langford

Microsoft Research, Redmond Summer 2015
Position: Research Intern. Mentor: Lihong Li

RESEARCH INTERESTS

Machine Learning, with focus on **Reinforcement Learning**.

PREPRINTS

On Oracle-Efficient PAC Reinforcement Learning with Rich Observations. ([pdf](#))
Christoph Dann, Nan Jiang, Akshay Krishnamurthy, Alekh Agarwal, John Langford, Robert E. Schapire.
presented at: 12th NYAS Machine Learning Symposium.

PUBLICATIONS

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.)

(NIPS'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*; also presented in Workshop "From Bad Models to Good Policies" in *Neural Information Processing Systems 2014*.

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*.

INVITED TALKS

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

AWARDS

- Rackham Predoctoral Fellowship** Mar. 2016
- CSE Honor Competition, 2nd Place** Nov. 2015
Representing AI Division in CSE's annual research competition at UMich.
- AAMAS 2015 Best Paper Award** May 2015

REVIEWING

Meta-reviewer AAAI'19

Reviewer ICML'16-18, IJCAI'16, AAAI'17-18, AISTATS'17-18, NIPS'17-18, JMLR

Auxiliary Reviewer ALT'15'17, COLT'16, ICLR'18

TEACHING

Project Advisor COMS E6998.001 Bandits and RL @ Columbia University (F17)

Guest Lecturer STATS 710 Sequential Decision Making with mHealth Applications (F16)

Graduate Student Instructor EECS 545 Machine Learning (W14)

Graduate Student Instructor EECS 574 Computational Complexity (F13)