

# Tengyang Xie

<https://tengyangxie.github.io>

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## RESEARCH INTERESTS

My research interests lie broadly in **reinforcement learning (RL)**, **nonconvex optimization**, and **statistical machine learning**. My current work focuses on off-policy RL and exploration. I am also interested in the intersection between theory of deep neural networks and reinforcement learning.

## EDUCATION

**University of Illinois at Urbana-Champaign**

*Ph.D. Student* – Computer Science

*Advisor:* Nan Jiang

Urbana, IL

Aug. 2019 – Present

**University of Massachusetts Amherst**

*Ph.D. Student* – Computer Science (GPA: 4.0/4.0)

*Master of Science* – Computer Science (GPA: 4.0/4.0)

Amherst, MA

Sept. 2016 – Aug. 2019

Sept. 2016 – Feb. 2019

**University of Science of Technology of China**

*Bachelor of Science* – Physics (Major GPA: 4.0/4.3)

Hefei, Anhui, China

Sept. 2011 – Jun. 2015

## PUBLICATIONS

- [1]. **Tengyang Xie**, Yifei Ma, Yu-Xiang Wang. Optimal Off-Policy Evaluation for Reinforcement Learning with Marginalized Importance Sampling. In *Thirty-third Conference on Neural Information Processing Systems (NeurIPS 2019)*, to appear.
- [2]. Yu Bai, **Tengyang Xie**, Nan Jiang, Yu-Xiang Wang. Provably Efficient Q-Learning with Low Switching Cost. In *Thirty-third Conference on Neural Information Processing Systems (NeurIPS 2019)*, to appear.
- [3]. **Tengyang Xie\***, Bo Liu\*, Yangyang Xu, Mohammad Ghavamzadeh, Yinlam Chow, Daoming Lyu, Daesub Yoon. A Block Coordinate Ascent Algorithm for Mean-Variance Optimization. In *Thirty-second Conference on Neural Information Processing Systems (NeurIPS 2018)*.

(\* indicates equal contribution or alphabetic ordering)

## PREPRINTS

- [4]. **Tengyang Xie**, Philip S. Thomas, Gerome Miklau. Privacy Preserving Off-Policy Evaluation. arxiv:1902.00174.

## EXPERIENCE

**University of Illinois at Urbana-Champaign**

*Research Assistant*

*Advisor:* Nan Jiang

Urbana, IL

Aug. 2019 – Present

- I am currently working on batch RL (i.e. off-policy RL) and exploration in RL, advised by Prof. Nan Jiang.

**Amazon AI**

*Research Intern*

*Mentors:* Yu-Xiang Wang, Yifei Ma

Palo Alto, CA

May 2018 – Aug. 2018

- Proposed a novel marginalized framework for designing the estimators of off-policy evaluation (OPE). This is the first series of OPE estimators which could utilize the Markov property to reduce the variance. We also proved that the variance of the marginalized estimators could match the existed variance lower bound for the episodic MDPs.

## University of Massachusetts Amherst

Research Assistant

Advisors: Gerome Miklau, Philip S. Thomas

Amherst, MA

Sept. 2016 – May 2019

- I worked with Prof. Gerome Miklau and Phil Thomas, on the problems in differential privacy and reinforcement learning.

## PROFESSIONAL SERVICES

Conference Reviewer: NeurIPS 2019 (top 50% reviewer), ICML 2019, AAAI 2020 2019

## TEACHING

Teaching Assistant at University of Massachusetts Amherst:

- Programming with Data Structures (CS187). Spring 2019
- Introduction to Simulation (CS590M). Spring 2018
- Introduction to Programming with Python (CS119). Fall 2017

## SELECTED COURSEWORKS

*Computer Science:* Deep Learning Theory, Machine Learning, Probabilistic Graphic Model, Reinforcement Learning, Advanced Algorithm, More Advanced Algorithms, Interactive Machine Learning, Database Design and Implementation

*Mathematics & Physics:* Mathematical Analysis, Linear Algebra, Probability Theory, Mathematical statistics, Real Analysis, Complex Analysis, Functional Analysis, Statistical Physics, Quantum Mechanics, Advanced Quantum Mechanics, Computational Physics (Monte Carlo Methods)

## SELECTED HONORS AND AWARDS

|   |            |
|---|------------|
| Wing Kai Cheng Fellowship                                     | 2019       |
| University Fellowship   | 2019       |
| NeurIPS Travel Award  | 2018       |
| The Mathematical Contest in Modeling (MCM), Honorable Mention | 2014       |
| Outstanding Student Scholarship, Silver Medalist (Top 10%)    | 2013, 2014 |
| Outstanding Student Scholarship, Bronze Medalist (Top 20%)    | 2012       |
| Outstanding Freshmen Scholarship                              | 2011       |
| China National Physics Olympiad, First Prize                  | 2010       |
| China National Physics Olympiad, Second Prize                 | 2009       |
| China National Mathematical Olympiad, Second Prize            | 2009       |

## SKILLS

Python, C/C++, PyTorch, TensorFlow, MXNet, Matlab, Mathematica,  $\text{\LaTeX}$ ...

## REFERENCE

Available upon request.