Zi **Wang**

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Research Interest

Sequential decision making, Bayesian optimization, active learning and planning.

Education

Sep. 2014 – now

Ph.D. Candidate in EECS, ***Massachusetts Institute of Technology*** Cambridge, MA

- GPA: 5.0/5.0; Minor in Japanese.
- Advisors: Prof. Stefanie Jegelka, Prof. Leslie Pack Kaelbling, and Prof. Tomás Lozano-Pérez
- Relevant courses: Underactuated Robotics, Database Systems, Inference and Information, Randomized Algorithms, Intro to Functional Analysis.

Sep. 2014 – Feb. 2016

S.M. in EECS, ***Massachusetts Institute of Technology*** Cambridge, MA

- Thesis: Optimization as Estimation with Gaussian Process Bandits
- Advisors: Prof. Stefanie Jegelka and Prof. Leslie Pack Kaelbling

2010 – 2014

B.Eng. in Computer Science and Technology, ***Tsinghua University*** Beijing, China

- Thesis: Fast Dropout Training for Deep Neural Networks (in Chinese)
- Outstanding Graduates Award; GPA: 92/100; rank: 2/129; advisors: Prof. Fei Sha and Prof. Jun Zhu

Honors & Awards

2014-2015 Greater China Computer Science Fellowship, *MIT.* Cambridge, MA

Sep. 2013 Anita Borg Scholarship, *Google China.* Beijing, China

2010 - 2014 4 Undergraduate Scholarships/Awards, *Tsinghua.* Beijing, China

May 2010 Tomorrow's Star of Shanghai's Science and Technology, *top 0.02%.* Shanghai, China

Feb. 2009 Mathematical Contest in Modeling (MCM), *Honorable Mention.* Bedford, MA

Experience

Research/Engineering Experience

Sep 2014 – now

Research Assistant, *Learning and Intelligent Systems Group, CSAIL, MIT.* Cambridge, MA

- Developed learning and planning algorithms for deterministic and stochastic systems.
- Designed practical algorithms for global optimization in high dimensions with large scale observations.

Jul – Aug 2017

Software Engineering Intern, *Motion Planning Team @ Uber ATG.* Pittsburgh, PA

- Worked with Mike Phillips, David Bradley and Kalin Gochev on a decision making module that enables safe, reliable and intelligent motion planning for the autonomous Uber vehicles.

Jun – Jul 2017

Software Engineering Intern, *Prediction Team @ Uber ATG.* Pittsburgh, PA

- Worked with Thi Nguyen, Vladan Radosavljevic and Nemanja Djuric on trajectory predictions via machine learning and contributed to the code base for the self-driving fleet of Uber.

Jul 2013 – May 2014

Research Assistant, *Theoretical and Empirical Data Sciences Group, USC.* Los Angeles, CA

- Derived and implemented a fast training algorithm with regularizer for neural nets via noise marginalization.
- Developed a discriminative non-negative matrix factorization algorithm for speech separation.

Mar 2013 – Jul 2014

Research Assistant, *State Key Lab of Intelligent Tech. & Systems, Tsinghua.* Beijing, China

- Researched scalable inference algorithms for correlated/dynamic topic models, and created visualizations.

Dec 2012 – May 2013

Research Assistant, *Future Internet Technology Sub-interest Group, Tsinghua.* Beijing, China

- Researched matrix factorization and random forest for movie recommendation for Baidu Inc.

Teaching Experience

Fall 2015

Teaching Assistant, *6.883 Learning with Discrete and Combinatorial Structure*, MIT

Professional Service

Reviewer of NIPS, AISTATS, UAI, CoRL, IROS, NIPS BayesOpt Workshop, NIPS ML for Intelligent Transportation Systems Workshop, ICML Workshop on ML for Autonomous Vehicles.

Co-president of Graduate Women in Course 6 (EECS Department) in 2016.

Supervisor of MIT's Undergraduate Research Opportunities Program (UROP).

- Supervisee (2016 summer): Michael Amoako. Project: Robot Motion Mapping with PR2.

Publication

Preprint

Z. Wang, C. R. Garrett, L. P. Kaelbling, T. Lozano-Pérez . **Active model learning and diverse action sampling for task and motion planning**. *arXiv preprint arXiv:1803.00967 (2018).*

Conference

Z. Wang, C. Gehring, P. Kohli, S. Jegelka . **Batched Large-scale Bayesian Optimization in High-dimensional Spaces**. *International Conference on Artificial Intelligence and Statistics (AISTATS), Lanzarote, Canary Islands, 2018.*

Z. Wang, S. Jegelka. **Max-value Entropy Search for Efficient Bayesian Optimization**. *International Conference on Machine Learning (ICML), Sydney, Australia, 2017.*

Z. Wang*, C. Li*, S. Jegelka, P. Kohli. **Batched High-dimensional Bayesian Optimization via Structural Kernel Learning**. *International Conference on Machine Learning (ICML), Sydney, Australia, 2017.*

Z. Wang, S. Jegelka, L. P. Kaelbling, T. Lozano-Pérez. **Focused Model-Learning and Planning for Non-Gaussian Continuous State-Action Systems**. *IEEE Conference on Robotics and Automation (ICRA), Singapore, 2017.*

Z. Wang, B. Zhou, S. Jegelka. **Optimization as Estimation with Gaussian Processes in Bandit Settings**. *International Conference on Artificial Intelligence and Statistics (AISTATS), 2016. Oral presentation (6% acceptance rate).*

Z. Wang, F. Sha. **Discriminative Non-Negative Matrix Factorization for Single-Channel Speech Separation**. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Florence, Italy, 2014.*

J. Chen, J. Zhu, **Z. Wang**, X. Zheng, B. Zhang. **Scalable Inference for Logistic-Normal Topic Models**. *Neural Information Processing Systems (NIPS), Lake Tahoe, CA, 2013.*

Workshop (Selected)

Z. Wang, C. Gehring, P. Kohli, S. Jegelka . **Batched Large-scale Bayesian Optimization in High-dimensional Spaces**. *Neural Information Processing Systems Workshop on Bayesian Optimization, Long Beach, CA, 2017.*

Z. Wang, B. Zhou, S. Jegelka. **Optimization as Estimation with Gaussian Processes in Bandit Settings**. *Neural Information Processing Systems Workshop on Bayesian Optimization, Montreal, Canada, 2015.*

Z. Lu*, **Z. Wang***, F. Sha. **Fast Learning with Noise in Deep Neural Nets**. *Neural Information Processing Systems Workshop on Perturbations, Optimization, and Statistics, Montréal, Canada, 2014.* ***Spotlight presentation***.

Skills

Programming and related

Most experienced (>6 years) with Python, Matlab and LaTeX.

Some experience (>3 years) with Java, C/C++, JavaScript, HTML.

Dabbled (<1 year) in VHDL, Verilog HDL, Assembly.

Language

Chinese (native), English (fluent), Japanese (beginner).