

Zhibing Zhao

Ph.D. Student

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Research Interests

- Learning to Rank
- Active Learning
- Statistical Inference
- Machine Translation

Education

- 2015–Present **Ph.D., Computer Science**, Rensselaer Polytechnic Institute, Troy, NY, US.
- 2012–2014 **M.S., Electrical Engineering**, University of Connecticut, Storrs, CT, US.
- 2008–2012 **B.Eng., Electrical Engineering**, Tsinghua University, Beijing, China.

Experience

- 2018 Summer **Research Intern**, MICROSOFT RESEARCH ASIA, Beijing, China.
Award of Excellence
Mentor: Tao Qin. Topic: neural machine translation.
- 2015–Present **Research Assistant**, RENSSELAER POLYTECHNIC INSTITUTE, Troy, NY, US.
Proved theorems on identifiability of mixtures of random utility models, designed algorithms to efficiently learn mixtures of random utility models.
 - (Accepted by UAI 2018) A Cost-Effective Framework for Preference Elicitation and Aggregation:
 - Preference elicitation: cost-effectiveness;
 - Group decision-making: easy-to-compute randomized voting rules: plurality and Borda.
 - (Accepted by ICML 2018) Composite marginal likelihood methods for Random Utility Models:
 - Rank-breaking: break full rankings into pairwise comparisons;
 - Composite marginal likelihood: strict concavity and consistency.
 - (Published at AAAI 2018) Learning mixtures of random utility models:
 - First theorems characterizing non-identifiability and generic identifiability;
 - Efficient algorithms: generalized-method-of-moments (GMM), EM-based algorithm (E-GMM), and the sandwich algorithm.
 - Comparisons of model fitness of different models on Preflib data.
 - (Published at ICML 2016 and ongoing) Learning mixtures of Plackett-Luce models:
 - First theorems characterizing non-identifiability, identifiability and generic identifiability;
 - Efficient algorithms: generalized-method-of-moments (GMM), EM-based algorithms.
- 2012–2014 **Research Assistant**, UNIVERSITY OF CONNECTICUT, Storrs, CT, US.
Life-oriented control strategy design for a tidal current energy system:
 - Modeling and small signal analysis;
 - Simulations with Simulink and OPAL-RT real-time simulator;
 - Hardware-in-the-loop simulations.

2011–2012 **Research Assistant**, TSINGHUA UNIVERSITY, Beijing, China.

- Cascade DC/DC converter in microgrid applications: modeling and controller design;
- Simulations performed with MATLAB/Simulink. Experiments completed using DSP TMS320F2812.

Selected Publications

- ★ 1. **Zhibing Zhao** Haoming Li, Junming Wang, Jeffrey Kephart, Nicholas Mattei, Hui Su and Lirong Xia, "A Cost-Effective Framework for Preference Elicitation and Aggregation", in *Proceedings of the 34th Conference on Uncertainty in Artificial Intelligence (UAI-18)*.
- ★ 2. **Zhibing Zhao** and Lirong Xia, "Composite Marginal Likelihood Methods for Random Utility Models", in *Proceedings of the 35th International Conference on Machine Learning (ICML-18)*.
- ★ 3. **Zhibing Zhao**, Tristan Villamil, and Lirong Xia, "Learning Mixtures of Random Utility Models", in *Proceedings of the 32nd AAAI Conference on Artificial Intelligence (AAAI-18)*.
- ★ 4. **Zhibing Zhao**, Peter Piech, and Lirong Xia, "Learning Mixtures of Plackett-Luce Models", in *Proceedings of the 33rd International Conference on Machine Learning (ICML-16)*.
- 5. **Zhibing Zhao**, Peng Zhang, Jun-Hong Cui and Shengli Zhou, "Life-Oriented Control of Tidal Power Generation", *OCEANS*, 2013.
- 6. **Zhibing Zhao**, Yongdong Li and Bo Dong, "Modeling and Control Strategy for Cascade Bi-directional DC/DC Converter in Microgrid", *IPEMC*, 2012.

Presentations

1. "Composite Marginal Likelihood Methods for Random Utility Models", oral and poster at ICML-18.
2. "Learning Mixtures of Random Utility Models", poster at AAAI-18 and CAEC-17.
3. "Computing Optimal Bayesian Decisions for Rank Aggregation via MCMC Sampling", oral at EC-15 workshop, poster at UAI-18.

Skills

Programming Languages	Python, MATLAB, C, C++
Operating Systems	Microsoft Windows, macOS, Ubuntu
Languages	Mandarin Chinese (native), English (professional)

Professional Service

Reviewed papers for AAMAS-18 and EC-18