Shibo Li

CONTACT INFORMATION

50 Central Campus Drive, 3910
Kahlert School of Computing
The University of Utah
Salt Lake City, UT, 84112

Phone: (206)595-8415
E-mail: shibo@cs.utah.edu
Homepage: https://imshibo.com

RESEARCH INTERESTS

Probabilistic Learning : Bayesian Modeling, Approximate Inference, Uncertainty Quantification of Deep Models

AI for Science : Surrogate Modeling, Operator Learning, Physical-Informed Machine Learning

Multi-Objective Learning: Multi-Task Learning, Multi-Fidelity Learning, Transfer Learning, Meta Learning

Interactive Machine Learning: Bayesian Optimization, Active Learning, Multi-armed Bandits, Reinforcement Learning

EDUCATION

The University of Utah, Salt Lake City, Utah

Ph.D. Student, Computer Science (expected graduation date: May 2024)

- Dissertation Topic: "Multi-Fidelity Learning and Optimization for Physical Simulation"
- Advisor: Shandian Zhe

University of Pittsburgh, Pittsburgh, Pennsylvania

M.S., Mechanical Engineering, Dec, 2013

South China University of Technology, Guangzhou, Guangdong, China

B.E., Mechatronics and Robotics, Jun, 2012

PUBLICATIONS

Wang, Z.*, Fang, S.*, **Li, S.**, & Zhe, S. (2023). Dynamic Tensor Decomposition via Neural Diffusion-Reaction Processes, *Advances in Neural Information Processing Systems (NeurIPS 2023)* . (Spotlight, **Top 10%**)

Fang, S., Yu, X., **Li, S.**, Wang, Z., Kirby R., & Zhe, S. (2023). Streaming Factor Trajectory Learning for Temporal Tensor Decomposition, *Advances in Neural Information Processing Systems (NeurIPS 2023)*. (Acceptance rate: 26.1%)

Li, S.*, Penwarden, M.*, Kirby, R. M., & Zhe, S. (2023 Jun). Meta Learning of Interface Conditions for Multi-Domain Physics-Informed Neural Networks. *In International Conference on Machine Learning (ICML 2023)* (to appear). PMLR. (Acceptance rate: 27.9%)

Li, S., Wang, Z., Narayan, A., Kirby, R., & Zhe, S. (2023, April). Meta-Learning with Adjoint Methods. In *International Conference on Artificial Intelligence and Statistics (AISTATS 2023)* (pp. 7239-7251). PMLR. (Acceptance rate: 29%)

Li, S., Wang, Z., Kirby, R., & Zhe, S. (2022). Infinite-Fidelity Coregionalization for Physical Simulation. *Advances in Neural Information Processing Systems (NeurIPS 2022)*, 35, 25965-25978. (Acceptance rate: 25.6%)

Li, S.*, Phillips, J. M.*, Yu, X., Kirby, R., & Zhe, S. (2022). Batch Multi-Fidelity Active Learning with Budget Constraints. *Advances in Neural Information Processing Systems (NeurIPS 2022)*, 35,

995-1007. (Acceptance rate: 25.6%)

Li, S., Kirby, R., & Zhe, S. (2022, June). Decomposing Temporal High-Order Interactions via Latent ODEs. In *International Conference on Machine Learning (ICML 2022)* (pp. 12797-12812). PMLR. (Acceptance rate: 21.9%)

Wang, Z., Xu, Y., Tillinghast, C., **Li, S.**, Narayan, A., & Zhe, S. (2022, June). Nonparametric Embeddings of Sparse High-Order Interaction Events. In *International Conference on Machine Learning (ICML 2022)* (pp. 23237-23253). PMLR. (Acceptance rate: 21.9%)

Li, S., Wang, Z., Kirby, R. & Zhe, S.. (2022). Deep Multi-Fidelity Active Learning of High-Dimensional Outputs . Proceedings of The 25th *International Conference on Artificial Intelligence and Statistics (AISTATS 2022)*, Available from https://proceedings.mlr.press/v151/li22b.html. (Acceptance rate: 29.2%)

Li, S., Kirby, R., & Zhe, S. (2021). Batch Multi-Fidelity Bayesian Optimization with Deep Auto-Regressive Networks. *Advances in Neural Information Processing Systems (NeurIPS 2021)*, 34, 25463-25475. (Acceptance rate: 26%)

Li, S., Xing, W., Kirby, R., & Zhe, S. (2020). Multi-fidelity Bayesian optimization via deep neural networks. *Advances in Neural Information Processing Systems (NeurIPS 2020)*, 33, 8521-8531. (Acceptance rate: 20.1%)

Li, S., Xing, W., Kirby, M., & Zhe, S. (2020). Scalable variational gaussian process regression networks. Proceedings of the Twenty-Ninth *International Joint Conference on Artificial Intelligence (IJCAI 2020)* Main track. Pages 2456-2462. https://doi.org/10.24963/ijcai.2020/340 (Acceptance rate: 12.6%)

Yang, T., Fang, S., **Li, S**., Wang, Y., & Ai, Q. (2020, October). Analysis of multivariate scoring functions for automatic unbiased learning to rank. In Proceedings of the 29th ACM *International Conference on Information & Knowledge Management (CIKM 2020)* (pp. 2277-2280). (Acceptance rate: 21.7%)

Workshop Papers

Li, S., Shi, L., & Zhe, S. (2023, July) Infinite-Fidelity Surrogate Learning via High-order Gaussian Processes. *1st Synergy of Scientific and Machine Learning Modeling @ ICML 2023*

Papers in Submission

Shibo Li, Xin Yu, Wei Xing, Mike Kirby, Akil Narayan and Shandian Zhe. *Multi-Resolution Active Learning of Fourier Neural Operators.*

Academic Services

Program Committee

AISTATS 2024
UAI 2023
AISTATS 2023
UAI 2022
AISTATS 2022
ICMLA 2022

Conference Reviewer

ICLR 2024
NeurIPS 2023
ICML 2023 Workshop SPIGM
NeurIPS 2022
NeurIPS 2022 MetaLearn Workshop

ICML 2022
AISTATS 2021
ICMLA 2021
UAI 2021
AAAI 2020

Journal Reviewer
Journal of Computational Physics
Scientific Reports

Teaching

The University of Utah
Teaching Mentorships
- **CS 6350 (Fall 2021)**: Machine Learning
- **CS 6350 (Spring 2021)**: Machine Learning

The University of Georgia
Teaching Assistant, Lab Instructor
- **CSCI 1101 (Fall 2017)**: Introduction to Programming I
- **CSCI 1101 (Spring 2017)**: Introduction to Programming II
- **CSCI 8902 (Fall 2016)**: Decision Making under Uncertainties
- **CSCI 1301(Fall 2015)**: System Programming

Appointments

Amazon, Inc., Seattle, WA
Applied Scientist Intern **May, 2022 - August, 2022**
In-context few-shots learning with large language/multi-modality models.

Amazon, Inc., Seattle, WA
Applied Scientist Intern **May, 2021 - August, 2021**
Privacy-preserved learning algorithms.

Schlumberger-Doll Research, Cambridge, MA
Robotics Research Intern **June, 2018 - October, 2018**
Force-controlled planning algorithms.

Reference

Shandian Zhe (advisor)
Assistant Professor
Kahlert School of Computing
The University of Utah
Salt Lake City, UT, 84112
Email: zhe@cs.utah.edu

Mike Kirby
Professor
Kahlert School of Computing, Scientific Computing and Imaging Institute
The University of Utah
Salt Lake City, UT, 84112
Email: kirby@cs.utah.edu

Akil Narayan
Associate Professor
Department of Mathematics, Scientific Computing and Imaging Institute
The University of Utah
Salt Lake City, UT, 84112

Email: akil@sci.utah.edu

Kang Li
Professor
Chief Security Officer @ CertiK
Franklin College of Arts and Sciences
The University of Georgia
Sunnyvale, CA, 94043
Email: kangli.ctf@gmail.com

Qing Ping
Senior Applied Scientist
Amazon, Inc,
Seattle, WA, 98109
Email: pingqing@amazon.com