Shibo Li

CONTACT INFORMATION

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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. in Computer Science, August 2024

- Thesis: "Efficient Probabilistic Learning and Optimization for Physical Simulations"
- Advisor: Shandian Zhe

University of Pittsburgh, Pittsburgh, Pennsylvania

M.S. in Mechanical Engineering, December, 2013

South China University of Technology, Guangzhou, Guangdong, China

B.E. in Mechatronics Engineering, June, 2012

CURRENT APPOINTMENT

Florida State University, Tallahassee, FL — **August 2024 - Present**
Assistant Professor in Department of Computer Science

PREVIOUS APPOINTMENTS

Amazon, Inc., Seattle, WA — **May, 2022 - August, 2022**
Applied Scientist Intern

Amazon, Inc., Seattle, WA — **May, 2021 - August, 2021**
Applied Scientist Intern

Schlumberger-Doll Research, Cambridge, MA — **June, 2018 - October, 2018**
Robotics Research Intern

PUBLICATIONS

Li, S., Yu, X., Xing, W., Kirby M., Narayan, A., & Zhe, S. (2024). Multi-Resolution Active Learning of Fourier Neural Operators, *The 27th International Conference on Artificial Intelligence and Statistics (AISTATS 2024)* . (**Oral presentation**)

Fang, S., Yu, X., Wang, Z., **Li, S.**, Kirby, M., & Zhe, S. (2024). Functional Bayesian Tucker Decomposition for Continuous-indexed Tensor Data, *In Twelfth International Conference on Learning Representations (ICLR 2024)* .

Fang, S., Cooley, M., Long, D., **Li, S.**, Kirby, M., & Zhe, S. (2024). Solving High Frequency and Multi-Scale PDEs with Gaussian Processes, *In Twelfth International Conference on Learning Representations (ICLR 2024)* .

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

Zheng Wang, **Shibo Li**, Shikai Fang, Shandian Zhe. *Diffusion-Generative Multi-Fidelity Learning for Physical Simulation.*

Invited Talks

AI Thrust, Hong Kong University of Science and Technology (Guangzhou) *Remote*	02/02/2024
Department of Computer Science, Duke University *Durham, NC*	02/19/2024
CISPA Helmholtz Center for Information Security *Saarbrücken, Germany*	02/26/2024
Hong Kong Baptist University (HKBU) *Remote*	02/27/2024
Department of Computer Science, University of Arizona *Tucson, AZ*	03/13/2024
Department of EECS, University of Tennessee, Knoxville *Tennessee, TN*	03/19/2024
Department of Computer Science, University of Oklahoma *Norman, OK*	04/24/2024

Academic Services

Program Committee

AAAI 2025
UAI 2024
AISTATS 2024
UAI 2023
AISTATS 2023
UAI 2022
AISTATS 2022
ICMLA 2022

Conference Reviewer

ICML 2025
ICRL 2025
NeurIPS 2024
ICML 2024
ICLR 2024
L4DC 2024
NeurIPS 2023
ICML 2023 Workshop SPIGM
NeurIPS 2022
NeurIPS 2022 MetaLearn Workshop
ICML 2022
ICMLA 2021
UAI 2021

Journal Reviewer

Journal of Computational Physics
Scientific Reports
Neural Networks

Teaching

Florida State University

Instructor

- **CIS5930 (Spring 2025)**: Probabilistic Machine Learning
- **COP3363 (Fall 2024)**: Introduction to Programming in C++ for Majors

The University of Utah

Teaching Mentorships

- **CS 6350 (Fall 2021)**: Machine Learning
- **CS 6350 (Spring 2021)**: Machine Learning