ZHENMEI SHI

Email: zhmeishi@cs.wisc.edu Tel: (+1) 608-698-2223

Homepage: http://pages.cs.wisc.edu/~zhmeishi/

EDUCATION

University of Wisconsin-Madison, USPh.D. in Computer Sciences (Advised by Yingyu Liang)Master of Science in Computer SciencesHong Kong University of Science and Technology, Hong KongBachelor of Science inComputer Science and Pure Mathematics AdvancedETH Zurich, Switzerland (Exchange)02/2018-08/2018

AREA OF INTEREST

My research interest mainly focuses on Understanding the learning and adaptation of Foundation Models, including Large Language Models, Vision Language Models, Diffusion Models, Shallow Networks, and so on.

PUBLICATIONS

* den	otes equal contribution or alphabetical ordering.	
1.	Do Large Language Models Have Compositional Ability? An Investiga Scalability Zhuoyan Xu*, Zhenmei Shi* , Yingyu Liang https://openreview.net/forum?id=4XPeF0SbJs	ation into Limitations and Workshop ICLR 2024
2.	Fourier Circuits in Neural Networks: Unlocking the Potential of Large I ematical Reasoning and Modular Arithmetic Jiuxiang Gu*, Chenyang Li*, Yingyu Liang*, Zhenmei Shi* , Zhao Song*, Tianyi Z https://openreview.net/forum?id=Gf7nZAfiaB	Language Models in Math- Zhou [*] Workshop ICLR 2024
3.	Towards Few-Shot Adaptation of Foundation Models via Multitask Fin Zhuoyan Xu, Zhenmei Shi , Junyi Wei, Fangzhou Mu, Yin Li, Yingyu Liang https://openreview.net/forum?id=1jbh2e0b2K	netuning ICLR 2024
4.	Domain Generalization via Nuclear Norm Regularization Zhenmei Shi* , Yifei Ming*, Ying Fan*, Frederic Sala, Yingyu Liang https://openreview.net/forum?id=hJd66ZzXEZ	Oral CPAL 2024
5.	Provable Guarantees for Neural Networks via Gradient Featu Zhenmei Shi*, Junyi Wei*, Yingyu Liang https://openreview.net/forum?id=5F04bU79eK	re Learning NeurIPS 2023
6.	A Graph-Theoretic Framework for Understanding Open-World Semi-Supervised Learning Yiyou Sun, Zhenmei Shi, Yixuan Li https://openreview.net/forum?id=ZITOHWeAy7 Spotlight NeurIPS 2023	
7.	Why Larger Language Models Do In-context Learning Differently? Zhenmei Shi , Junyi Wei, Zhuoyan Xu, Yingyu Liang https://openreview.net/forum?id=2J8xnFLMgF	Workshop NeurIPS 2023
8.	When and How Does Known Class Help Discover Unknown Ones? Through Spectral Analysis	Provable Understandings

Yiyou Sun, **Zhenmei Shi**, Yingyu Liang, Yixuan Li https://openreview.net/forum?id=JHodnaW5WZ

ICML 2023

9. The Trade-off between Label Efficiency and Universality of Representations from **Contrastive Learning** Zhenmei Shi*, Jiefeng Chen*, Kunyang Li, Jayaram Raghuram, Xi Wu, Yingyu Liang, Somesh Jha https://openreview.net/forum?id=rvsbw2YthH_ (Accept Rate: 7.95%) Spotlight ICLR 2023 10. A Theoretical Analysis on Feature Learning in Neural Networks: Emergence from Inputs and Advantage over Fixed Features Zhenmei Shi*, Junyi Wei*, Yingyu Liang https://openreview.net/forum?id=wMpS-Z_AI_E ICLR 2022 11. Attentive Walk-Aggregating Graph Neural Networks Mehmet F. Demirel, Shengchao Liu, Siddhant Garg, Zhenmei Shi, Yingyu Liang https://openreview.net/forum?id=TWSTyYd2R1 **TMLR 2022** 12. Deep Online Fused Video Stabilization Zhenmei Shi, Fuhao Shi, Wei-Sheng Lai, Chia-Kai Liang, Yingyu Liang WACV 2022 https://zhmeishi.github.io/dvs/ 13. Structured Feature Learning for End-to-End Continuous Sign Language Recognition Zhaoyang Yang*, Zhenmei Shi*, Xiaoyong Shen, Yu-Wing Tai https://arxiv.org/abs/1908.01341 News, 2019 14. Dual Augmented Memory Network for Unsupervised Video Object Tracking Zhenmei Shi*, Haoyang Fang*, Chi-Keung Tang, Yu-Wing Tai https://arxiv.org/abs/1908.00777 https://zhmeishi.github.io/DAWN/, 2019 **PROFESSIONAL EXPERIENCE** AI Research Scientist Intern at Salesforce, Palo Alto, CA 06/2024-08/2024 Supervised by: Yu Bai, Shafiq Joty and Huan Wang • In-context learning. Research Scientist Intern at Adobe, Seattle, WA 12/2023-05/2024 • Large Model Emergent Ability. Supervised by: Zhao Song and Jiuxiang Gu Software Engineering Intern at Google YouTube Ads Machine Learning, CA 06/2021-09/2021 Supervised by: Myra Nam • Recommendation System. Software Engineering Intern at Google Pixel Camera, Mountain View, CA 05/2020-08/2020 • Deep Video Stabilization. Supervised by: Fuhao Shi Reseach Intern at Megvii (Face++) Foundation Model, Beijing 06/2019-08/2019 • Neural Architecture Search. Supervised by: Xiangyu Zhang Machine Learning Research Intern at **Tencent** YouTu, Shenzhen 12/2018-02/2019

Sign Language Recognition. Supervised by: Yu-Wing Tai
Machine Learning Reseach Intern at Tencent YouTu, Shenzhen
Deep Colorization. Supervised by: Yu-Wing Tai
News
Research Assistant at UW-Madison CS School
09/2019 - Present
02/2019-06/2019

Research Assistant *at* Oak Ridge National Lab, US Part-Time Programmer *at* CUHK, HKBU, HKUST 05/2017-08/2017 06/2016-08/2016, 04/2017, 12/2018

ACADEMIC SERVICES

Conference Reviewer *at* ICLR 2022-2024, NeurIPS 2022-2024, ICML 2022 and 2024, ICCV 2021-2023, CVPR 2021-2022, ECCV 2020-2022, WACV 2022 Journal Reviewer *at* JVCI, IEEE Transactions on Information Theory

TEACHING EXPERIENCE

Teaching Assistant of CS220 (Data	Programming I) at UW-Madison	Spring 2020
Teaching Assistant of CS301 (Intro	to Data Programming) at UW-Madison	Fall 2019

EXTRA-CURRICULAR

Visiting Student at Microsoft Research Asia (MSRA)	08/2017
Mentee at Hong Kong X-Tech	2017-2018
Vice Chairman at Microsoft Student Club @ HKUST	2017-2018
S.S. Chern Class Member at HKUST Mathematics Department	2016-2019
Volunteer Teacher at Ociva, Maldives	12/2016-01/2017
Software Team Member at HKUST Robotics Team	2015-2016

AWARDS & SCHOLARSHIPS

NeurIPS 2023 Scholar Award	10/2023
Student Research Grants Competition from UW-Madison	04/2023
ICLR 2023 Financial Assistance	03/2023
CS Departmental Scholarship from UW-Madison	09/2019
Academic Achievement Medal from HKUST	11/2019
S.S. Chern Class Achievement Scholarship from HKUST Math Department	07/2019
Undergraduate Research Opportunity Program Award from HKUST	04/2019
Best Student Team from HC2 (Switzerlands Biggest Programming Contest)	03/2018
Champion of Micro Innovation Award <i>from</i> Tencent	02/2018
1st Runner-up $from$ HKUST x Radica Big Datathon	12/2017
Technology Star from Beauty of Programming Competition held by MSRA	08/2017
1st Prize of University's Scholarship for Undergraduate Student from HKUST	2016-2019
Reaching Out Award from HKSAR Government Scholarship Fund	2017-2018
Exchange Award, Lee Hysan Foundation Exchange Scholarship from HKUST	2017-2018
The Cheng Foundation Scholarship for Mainland Students from HKUST	2016-2017
Dean's List from HKUST	2015-2019

TECHNICAL SKILLS

Python: JAX, TensorFlow, PyTorch, Numpy, sklearn, Pandas, BeautifulSoup, re, Spark C++: Caffe, OpenCV, OpenMP, MPI Java, MatLab, C, R, SQL, CUDA, LATEX, Bash Script

INVITED TALKS

Provable Guarantees for Neural Networks via Gradient Feature Learning

• AI Time Idea Seminar, October 2023, Remote, https://www.bilibili.com/video/BV1MG411y7gA/ ?vd_source=18fa90c33bc2626d02eca4a2c3df3601

The Trade-off between Universality and Label Efficiency of Representations from Contrastive Learning

- AI Time Idea Seminar, June 2023, Remote, https://www.bilibili.com/video/BV1eo4y1T7Zb/ ?vd_source=18fa90c33bc2626d02eca4a2c3df3601
- MLOPT Idea Seminar, March 2023, Madison, USA, https://mlopt.ece.wisc.edu/idea-seminar/