Yuxin Dong

Post Doctoral Scholar at Ohio State University

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Personal Profile

I am a Post Doctoral Scholar at the School of Biomedical Informatics, Ohio State University. In September 2024, I completed my Ph.D. degree at the School of Computer Science and Technology, Xi'an Jiaotong University, advised by Prof. Chen Li and Prof. Tieliang Gong. I obtained my B.E. degree in Computer Science and Technology at Xi'an Jiaotong University.

My research interests lie in statistical learning theory and information theory. Recently, I have focused on information-theoretic generalization analysis and robust learning in classification, regression, and time-series analysis tasks. These works shed light on understanding the success and limitations of current learning methods and inspire designing new effective strategies. My research areas include:

- Theoretically analyzing the generalization ability of randomized optimization strategies through the lens of information theory.
- Effective and robust learning based on information-theoretic measurements and analysis.
- Developing computationally efficient approximations for information-theoretic quantities and measurements.

Work Experience

The Ohio State University *Columbus OH, USA*

Post Doctoral Scholar *Feb 2025 - Current*

Education

Xi'an Jiaotong University *Xi'an Shaanxi, China*

B.E. in Computer Science and Technology *Sep 2014 - Jun 2019*

- GPA: 3.81 / 4.30

Xi'an Jiaotong University *Xi'an Shaanxi, China*

Ph.D. in Computer Science and Technology *Sep 2019 - Sep 2024*

- GPA: 3.78 / 4.00 **(Top 1)**

Publications

Journal Articles

How Does Distribution Matching Help Domain Generalization: An Information-theoretic Analysis
Yuxin Dong, Tieliang Gong, Hong Chen, Shuangyong Song, Weizhan Zhang, Chen Li
IEEE Transactions on Information Theory. 2025

Optimal Randomized Approximations for Matrix-based Rényi's Entropy
Yuxin Dong, Tieliang Gong, Shujian Yu, Chen Li
IEEE Transactions on Information Theory. 2023

Efficient Approximations for Matrix-Based Rényi's Entropy on Sequential Data
Yuxin Dong, Tieliang Gong, Hong Chen, Chen Li
IEEE Transactions on Neural Networks and Learning Systems. 2023

Computationally Efficient Approximations for Matrix-Based Rényi's Entropy
Tieliang Gong*, **Yuxin Dong***, Shujian Yu, Bo Dong
IEEE Transactions on Signal Processing. 2022

Markov Subsampling Based on Huber Criterion
Tieliang Gong, **Yuxin Dong**, Hong Chen, Bo Dong, Chen Li
IEEE Transactions on Neural Networks and Learning Systems. 2022

Conference Proceedings

Towards Generalization beyond Pointwise Learning: A Unified Information-theoretic Perspective
Yuxin Dong, Tieliang Gong, Hong Chen, Mengxiang Li, Zhongjiang He, Chen Li
International Conference on Machine Learning, 2024

Rethinking Information-theoretic Generalization: Loss Entropy Induced PAC Bounds
Yuxin Dong, Tieliang Gong, Hong Chen, Shujian Yu, Chen Li
International Conference on Learning Representations, 2024

Understanding the generalization ability of deep learning algorithms: a kernelized Rényi's entropy perspective
Yuxin Dong, Tieliang Gong, Hong Chen, Chen Li
International Joint Conference on Artificial Intelligence, 2023

Robust and Fast Measure of Information via Low-rank Representation
Yuxin Dong, Tieliang Gong, Shujian Yu, Hong Chen, Chen Li
AAAI Conference on Artificial Intelligence, 2023

Regularized Modal Regression on Markov-Dependent Observations: A Theoretical Assessment
Tieliang Gong, **Yuxin Dong**, Hong Chen, Wei Feng, Bo Dong, Chen Li
AAAI Conference on Artificial Intelligence, 2022

Patent

A Storage Scheme for Extremely Large Image Files
Chen Li, **Yuxin Dong**, Pargorn Puttapirat, Jingyi Deng
Chinese Invention Patent, ZL201911206466.6. 2021

Skills

Programming C/C++, Python, Matlab, Java, C#, JavaScript, PHP, HTML.
Software Microsoft Office (Word, Excel, PowerPoint), Latex, Adobe (Photoshop, Premiere, Audition).
English CET-4 (576), CET-6 (547), TOEFL (102).

Awards

2023 **China Mobile Outstanding Scholarship (Top 7)**.
2023 **Excellent Postgraduate Award (Top 30%)**, Xi'an Jiaotong University.
2019 **Excellent Undergraduate Thesis Award (Top 10)**, Xi'an Jiaotong University.
2017 **Silver Medal (Top 30%)**, China Collegiate Programming Contest - Haerbin Regional Contest.
2017 **Silver Medal (Top 25%)**, International Collegiate Programming Contest - Beijing Regional Contest.
2017 **First Prize (Top 0.6%)**, Contemporary Undergraduate Mathematical Contest in Modeling.