

Ziliang(Samuel) Zhong

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EDUCATION

New York University

New York/ Shanghai

Ph.D in Data Science, Overall GPA 3.77/4

May 2021- Present

- Advisor: Prof. [Shuyang Ling](#)
- Coursework: Deep Learning, Advanced Statistical Inference, Big Data, Computer Vision, Scientific Computing, Convex and Nonconvex Optimization

New York University

New York/ Shanghai

B.S. in Mathematics and Data Science, Major GPA 3.96/4

Sep. 2017 – May 2021

- Thesis: [Exact recovery in stochastic coblock models](#)
- Coursework: Machine Learning, Databases, Forecasting Times Series Data, Fundamental Algorithms, Fluid Dynamics Partial Differential Equations, Abstract Algebra, Complex Variables, Stochastic Process, Mathematical Statistics, Honors Theory of Probability, Honors Linear Algebra, Honors Analysis

RESEARCH PROJECTS

Provable Multi-source Domain Adaptation with Meta Learning

Jan. 2023 – Oct. 2023

New York University, advised by Prof. [Qi Lei](#).

New York, NY

- Introduced a novel theoretical framework that incorporates features that are approximately shared through various domains.
- Formally designed and analyzed a learning procedure consisting of meta-representation learning on source tasks and the fine-tuning phase on the target task.
- Our generalization bound on adapting to new tasks presents better and more interpretable rates than prior work.

Near-optimal statistical ranking via spectral method

Jan. 2022 – Oct. 2023

New York University, advised by Prof. [Shuyang Ling](#).

New York, NY

- Proposed a spectral algorithm to estimate the rankings of items from (both unnormalized and normalized) pairwise differences between them (for example, sports data).
- Proved that this algorithm can achieve $\Omega(n \log(n))$ sample complexity, beating the state-of-the-art result $\Omega(n^{4/3} \log^{3/2}(n))$.

Semi-supervised video prediction and segmentation

Jan. 2023 – May. 2023

New York University

New York, NY

- Proposed a multi-stage semi-supervised framework based on the technique of pseudo label.
- Novelty integrated video prediction and segmentation into a single framework to make end-to-end segmentation.
- Empirically verified that our algorithm succeeded on tasks requiring video prediction and segmentation simultaneously.

Cancer image classification based on DenseNet model

Jan. 2020 – Jul. 2020

New York University

New York, NY

- Proposed a novel cancer classification method based on DenseNet which is more able to capture detailed features in medical imaging
- The proposed method outperformed traditional models by $\sim 10\%$ such as ResNet34 and VGG19 in terms of Auc-Roc Score on the open source dataset.

PUBLICATIONS AND PREPRINTS

[1] **Z. Zhong**, X. Pan, Q. Lei, “A Theoretical Analysis of Multi-source Domain Adaptation with Meta Representation Learning.” In submission.

[2] P. Liu, C. Jin, **Z. Zhong**, “Multi-Stage Transfer Learning for Efficient Video Prediction and Segmentation with Sparse Labeled Data.” In submission.

[3] **Z. S. Zhong**, S. Ling, “Improved theoretical guarantee for rank aggregation via spectral method” [arXiv:2309.03808](https://arxiv.org/abs/2309.03808). In submission.

[4] **Z. Zhong**, M. Zheng, H. Mai, J. Zhao, X. Liu, “Cancer image classification based on DenseNet model,” *Journal of Physics: Conference Series (Vol. 1651)*, presented at The 2020 2nd International Conference on Artificial Intelligence Technologies and Applications (ICAITA 2020). DOI [10.1088/1742-6596/1651/1/012143](https://doi.org/10.1088/1742-6596/1651/1/012143).

AWARDS AND GRANTS

- National Key R&D Program of China, 2021-2026
- NYU Shanghai Doctoral Fellowship, 2021-2026
- Dean's List Award for 2017-2018 and 2019-2020
- Kaggle bronze medal: [SIIM-ISIC Melanoma Classification](#), 2020

TEACHING EXPERIENCE

- MATH-SHU 234 Mathematical Statistics, 2023 Fall (TA, undergraduate)
- Mentored 5+ undergraduate and high school students on (under)graduate application