Ziliang(Samuel) Zhong

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Education

New York University — New York/ Shanghai
Ph.D in Data Science — *May 2021- Present*

- Advisor: Prof. Shuyang Ling
- Coursework: Big Data, Computer Vision, Scientific Computing, Convex and Nonconvex Optimization

New York University — New York/ Shanghai
B.S. in Mathematics and Data Sciecne, Major GPA 3.96/4 — *Sep. 2017 – May 2021*

- Thesis
- Coursework: Machine Learning, Databases, Forecasting Times Series Data, Algorithms, Abstract Algebra, Complex Variables, Mathematical Statistics, Honors Theory of Probability, Honors Linear Algebra

Research Experience

Working paper: Near-optimal statistical ranking — Jan. 2022 – Present
New York University, advised by Prof. Shuyang Ling. — *New York, NY*

- Proved a near-optimal error bound for the state-of-the-art spectral algorithm for statistical ranking.

Point cloud registration: a SDP approach — Jan. 2022 – May. 2022
New York University, advised by Prof. Michael Overton. — *New York, NY*

- Reviewed 30+ pieces of literature on the point cloud registration problem (also known as Procrustes matching).
- Improved existing SDP relaxation of the problem by changing some constraints.
- The improved numerically SDP outperforms existing algorithms such as spectral method.

Community detection in Directed Network — Sept. 2020 – May. 2021
New York University Shanghai, advised by Prof. Shuyang Ling. — *Shanghai, CN*

- Proved information-theoretical threshold for exact recovery in directed stochastic block models.
- Proved that SDP relaxation can achieve the proved bound.
- Proposed a spectral algorithm for community detection in directed networks.

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

Z. Zhong, M. Zheng, H. Mai, J. Zhao, X. Liu, "Cancer image classification based on DenseNet model", Journal of Physics: Conference Series (Vol. 1651). The 2020 2nd International Conference on Artificial Intelligence Technologies and Applications (ICAITA 2020) doi: 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 Academic Year
- Kaggle bronze medal: SIIM-ISIC Melanoma Classification, 2020

Skills

Languages: Chinese Mandarin, English
Programming languages:: Python (tensorflow, pytorch), Matlab, R, MySQL
Big Data toolbox: Spark, HDFS, MapReduce