Yutong Wang, Ph.D.   **Postdoctoral Research Fellow | ECE | University of Michigan**

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Research interests

Theory of deep learning and interpolating models

Applications to reconstructive spectroscopy

Professional Experience

Jan'23–Present   **Schmidt AI in Science Postdoctoral Fellow**
                   University of Michigan - Ann Arbor, MI, USA

Sep'22–Dec'22   **Postdoctoral Research Fellow**
                   ECE division of EECS Dept., University of Michigan - Ann Arbor, MI, USA

Education

Sep'16–Aug'22   **University of Michigan, Ann Arbor**   3.9 GPA
                   Ph.D. candidate in electrical & computer engineering (ECE)

Sep'14–Jun'16   **University of California, Davis**   3.9 GPA
                   M.A. in mathematics

Sep'10–Apr'14   **University of Michigan, Ann Arbor**   3.7 GPA
                   B.S.E. in electrical engineering with minor in mathematics

Publications

Yutong Wang, and Clayton Scott. "On Classification-Calibration of Gamma-Phi Losses."   [arXiv]

Yutong Wang, and Clayton Scott. "Consistent Interpolating Ensembles via the Manifold-Hilbert Kernel." *NeurIPS 2022.*   [OpenReview] [arXiv]

Jianxin Zhang, **Yutong Wang**, and Clayton Scott. "Learning from Label Proportions by Learning with Label Noise." *NeurIPS 2022.*   [OpenReview] [arXiv]

Yutong Wang and Clay Scott. "VC dimension of partially quantized neural networks in the overparametrized regime." *ICLR 2022.*   [OpenReview] [arXiv]

Yutong Wang and Clay Scott. "An exact solver for the Weston-Watkins SVM subproblem." *ICML 2021.*   [Proceedings] [arXiv]

Yutong Wang and Clay Scott. "Weston-Watkins Hinge Loss and Ordered Partitions." *NeurIPS 2020.*   [Proceedings][arXiv]

Tasha Thong[*], **Yutong Wang**[*], Michael D. Brooks, Christopher T. Lee, Clayton Scott, Laura Balzano, Max S. Wicha, Justin A. Colacino. "Hybrid Stem Cell States: Insights Into the Relationship Between Mammary Development and Breast Cancer Using Single-Cell Transcriptomics" *Frontiers in Cell and Developmental Biology, vol. 8, article 288, 2020.*   [Article]

Honors and Awards

NeurIPS 2022 Scholar Award.

NIH-sponsored travel award for NeurIPS 2019 Conference workshop, "Learning Meaningful Representations of Life"

The Rollin M. Gerstacker Foundation Fellowship, 2016.

Dean's List 7 times, and **University Honors** 4 times.

Technical reports & workshop presentations

Y. Wang, Q. Qu, and W. Hu. "**Closed-form Solutions of Learning Dynamics for Two-layer Nets for Collapsed Orthogonal Data.**" *Third Workshop on Seeking Low-Dimensionality in Deep Neural Networks 2023.*　　　　　[Workshop website]

Y. Wang, and C. Scott. "**Consistent Interpolating Ensembles.**" *Workshop on the Theory of Overparameterized Machine Learning 2022.*　　　　[Workshop website]

Y. Wang, J. Welch, L. Balzano, and C. Scott. "**Domain adaptation for spatial and dissociated gene expression data.**" *Learning Meaningful Representations of Life (LMRL) Workshop at NeurIPS 2019.*　　　　　[Workshop abstract]

Y. Wang, T. Thong, V. Saligrama, J. Colacino, L. Balzano, and C. Scott. "**A Gene Filter for Comparative Analysis of Single-Cell RNA-Sequencing Trajectory Datasets.**"　　　　　[bioRxiv]

Y. Wang, M. Reyes, and D. Neuhoff. "**Correct Convergence of Min-Sum Loopy Belief Propagation in a Block Interpolation Problem.**"　　　　[arXiv]

Teaching experiences

Co-mentor • University of Michigan, Ann Arbor • Michigan Research Experience for Graduates 2022 • Topic: Math for Machine Learning and Data Science • Lead mentor: Rishi Sonthalia

Graduate student instructor • University of Michigan, Ann Arbor • Course: EECS 598 Statistical Learning Theory, Winter 2021. • ECE GSI Honorable Mention.

Guest lecturer • University of Michigan, Ann Arbor • Lecture topic: Fairness in machine learning and its impact on social policy. • Course: SW 508 Essentials of Social Welfare Policy, Fall 2021. • Course instructor: Rita Xiaochen Hu.

Teaching assistant • University of California, Davis • Courses taught: MAT 21C Calculus: Partial Derivatives and Series, Winter 2015, Fall 2015, Winter 2016, and Winter 2016. MAT 21D Vector Analysis, Fall 2014, and Spring 2016.

Poster presentations

Jan'19　　**Unsupervised feature selection for manifold alignment of scRNA-seq data**
Michigan Student Symposium for Interdisciplinary Statistical Sciences 2019.
"Best Speed Oral Presentation" award.

Jun'17　　**Joint analysis of bulk and single-cell RNA-Seq data via matrix factorization**
Midwest Machine Learning Symposium

Oct'17　　**A convex clustering formulation using the similarity matrix**
3rd Annual MIDAS Symposium
"Most Interesting Methodological Advancement" award.

Service activities

Reviewer for ICLR 2023 Workshop on Domain Generalization, PNAS, ICML 2020, IEEE Transactions on Signal Processing, JMLR.

Group leader for NeurIPS 2022 High School Outreach Program.

Judge for Michigan Student Symposium for Interdisciplinary Statistical Sciences (MSSISS).