

Yu Ding

Postdoctoral Research Fellow ■ Machine Learning for Healthcare ■ Cancer Data Science

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Research Profile

Statistical machine learning researcher developing methods for heterogeneous biomedical data, with a focus on cancer evolution and intratumor heterogeneity. Research spans scalable subclonal reconstruction, multi-omics integration, structured statistical modeling, and privacy-preserving functional learning.

Academic and Research Appointments

The University of Texas MD Anderson Cancer Center
Postdoctoral Research Fellow

Houston, Texas
2024 – Present

Department of Bioinformatics and Computational Biology; mentor: Wenyi Wang.

The University of Kansas School of Business
Research Assistant in Operations Management

Lawrence, Kansas
2019 – 2020

Education

Binghamton University
Ph.D. in Industrial and Systems Engineering
Advisor: Bing Si.

Vestal, New York
2020 – 2024

Dissertation: *Statistical Machine Learning and Data Fusion Methodologies: Applications in Healthcare.*

Wayne State University
M.S. in Industrial Engineering

Detroit, Michigan
2017 – 2019

University of Science and Technology of China
B.S. in Geophysics

Hefei, China
2013 – 2017

Peer-Reviewed Publications

†: Equal first author * : Corresponding author

- [J.8] Mueller, S. D.*, Sutherland, M. A., **Ding, Y.**, Si, B., Hutchinson, M. K. (2026). **A cross-sectional analysis of comprehensive campus health services at MSI and non-MSI institutions in the U.S.** *Journal of Health Equity*, 3(1), 2679111.
- [J.7] **Ding, Y.**, Costa, C., Si, B.* (2026). **Federated function-on-function regression with an efficient gradient boosting algorithm for privacy-preserving telemedicine.** *IEEE Transactions on Automation Science and Engineering*, 23, 4704–4716. [Video]
- [J.6] **Ding, Y.**, Somers, V. K., Si, B.* (2025). **Multi-modal mixed-type structural equation modeling with structured sparsity for subgroup discovery from heterogeneous health data.** *IISE Transactions*, 57(12), 1497–1511.
- [J.5] Sutherland, M. A.*, Hutchinson, M. K., Si, B., **Ding, Y.**, Liebermann, E., Connolly, S. L., Saint-Eloi Cadely, H., Hayes, J. F., Mueller, S. D. (2025). **Health screenings in college health centers: Variations in practice.** *Journal of American College Health*, 73(8), 3031–3038.
- [J.4] Mueller, S. D.*, Sutherland, M. A., Hutchinson, M. K., Si, B., **Ding, Y.**, Connolly, S. L. (2024). **Student Health Services at Historically Black Colleges and Universities and Predominantly Black Institutions in the United States.** *Health Equity*, 8(1), 226–234.
- [J.3] Alramadeen, W., **Ding, Y.**, Costa, C., Si, B.* (2023). **A novel sparse linear mixed model for multi-source mixed-frequency data fusion in telemedicine.** *IISE Transactions on Healthcare Systems Engineering*, 13(3), 215–225.
- [J.2] Jiang, L., **Ding, Y.**, Sutherland, M. A., Hutchinson, M. K., Zhang, C., Si, B.* (2022). **A novel sparse model-based algorithm to cluster categorical data for improved health screening and public health promotion.** *IISE Transactions on Healthcare Systems Engineering*, 12(2), 137–149.
- [J.1] **Ding, Y.**, Yang, Q.*, King, C. B., Hong, Y. (2019). **A general accelerated destructive degradation testing model for reliability analysis.** *IEEE Transactions on Reliability*, 68(4), 1272–1282.

Preprints and Other Manuscripts

†: Equal first author *: Corresponding author

Preprints

- [P.2] Jiang, Y.[†], Montierth, M. D.[†], **Ding, Y.**, Yu, K., Tran, Q., Wu, A., Li, R., Ji, S., Liu, X., Shin, S. J., Cao, S., Tang, Y., Lesluyes, T., Kimmel, M., Wang, J. R., Tarabichi, M., Zhu, H., Van Loo, P., Wang, W.* (2026). **Scalable subclonal reconstruction of cancer cells in DNA sequencing data using a penalized likelihood model.** *bioRxiv* preprint, version 2, May 7, 2026.
- [P.1] Paul, A.[†], Lal, J. C.[†], Ji, S., Fong, C., Chen, K., **Ding, Y.**, Li, R., Dai, Y., Tran, Q., Montierth, M., Alberti, S., Kopetz, S., Wang, W.* (2026). **Tumor cell specific total mRNA expression informed neural networks predicts cancer progression.** *bioRxiv* preprint, version 1, May 6, 2026.

Manuscripts under review

- [M.4] Shalapour, S.*, et al. (including **Ding, Y.**). **Host Nutritional State Reprograms Hepatic Anti-Tumor Immunity, Shaping Tumor Progression and Immunotherapy Outcome.** Manuscript under review.
- [M.3] Shalapour, S.*, et al. (including **Ding, Y.**). **Macronutrient Composition and Alcohol Drives Distinct Molecular and Oncogenic Trajectories in the Liver.** Manuscript under review.
- [M.2] **Ding, Y.**, Costa, C., Si, B.* **Single-Shot Differentially Private Vertical Federated Function-on-function Learning.** Manuscript under review. [Code]

Manuscript in preparation

- [M.1] Dai, Y., Guo, S., Tran, Q., Zhang, Z., **Ding, Y.**, Hosseini, N., Basu, S., Cruz-Colli, C., Subudhi, S., Goswami, S., Bose, R., Soundararajan, R., Haffner, M., Van Loo, P., Aparicio, A. M.*, Wang, W.* **Multimodal dissection of metastatic tumors identifies TP53 truncation as a determinant of chemotherapy resistance in Aggressive Variant Prostate Cancers.** In preparation.

Research Software

- **CliPP** — contributor. Penalized-likelihood reconstruction of tumor subclones from single-sample DNA sequencing data; preprocessing and postprocessing updates. [Repository] [Release]
- **CliPP1.5** — developer and maintainer. Single-sample mutation clustering with estimates of cancer cell fractions and mutation multiplicities; CPU and GPU support. [Repository]
- **CliPP2** — developer and maintainer. Joint mutation clustering across tumor regions, estimating regional cancer cell fractions and mutation multiplicities. [Repository]

Honors, Awards, and Fellowships

Warren Alpert Computational Biology and AI Network Fellow ; <i>UCLA Computational Genomics Summer Institute</i>	Aug 2025
Best Team Award ; <i>James P. Allison Institute and IDSO Hackathon</i>	Apr 2025
QCRE Best Student Paper Award Finalist ; <i>IISE Annual Conference & Expo</i>	May 2024
National Science Foundation (NSF) Travel Award ; <i>The University of Arizona</i>	May 2024
Watson Professional Development Fund ; <i>SUNY Binghamton</i>	Apr 2024
Summer Research Fellowship ; <i>The University of Kansas</i>	Apr 2020
University Graduate Fellowship ; <i>The University of Kansas</i>	Aug 2019
Graduate Fellowship ; <i>Wayne State University</i>	Aug 2018
National Encouragement Scholarship ; <i>University of Science and Technology of China</i>	Aug 2016

Talks and Posters

Talks and conference presentations

- **Scalable subclonal reconstruction of cancer cells in DNA sequencing data using a penalized likelihood model.** Poster, NCI Summer School on Algorithmic Cancer Biology (SSACB), National Institutes of Health, Bethesda, MD, July 6–10, 2026. [\[Poster\]](#)
- **Bidirectional Prognostic Associations of Subclonal Mutation Fraction in Patients Receiving Immunotherapy.** Oral presentation, UCLA Computational Genomics Summer Institute (CGSI), UCLA, Los Angeles, CA, 2026.
- **Federated function-on-function regression with an efficient gradient boosting algorithm for privacy-preserving telemedicine.** Departmental talk, Department of Radiation Oncology, Mayo Clinic Arizona, Phoenix, AZ, July 1, 2024.
- **Federated function-on-function regression with an efficient gradient boosting algorithm for privacy-preserving telemedicine.** Conference presentation, IISE Annual Conference & Expo, Montreal, Canada, May 18, 2024. [\[Video\]](#)

Coauthored posters

- Jahedi, A., Unal, M., **Ding, Y.**, Nurmammadova, A., Liu, Y., Wang, L., Nolan, G. P. **Boundary-Specific Remodeling Defines Divergent TLS Maturation in Colorectal Cancer.** James P. Allison Institute 3rd Annual Scientific Symposium, MD Anderson Cancer Center, Houston, TX, October 24, 2025. [\[Poster\]](#)
- Nurmammadova, A., **Ding, Y.**, Jahedi, A., Unal, M., Liu, Y., Wang, L., Nolan, G. P. **Deep Learning–Based Spatial Analysis of TLSs in CRC Reveals Stromal Barriers Predicting Impaired Cell–Cell Communication.** James P. Allison Institute 3rd Annual Scientific Symposium, MD Anderson Cancer Center, Houston, TX, October 24, 2025. [\[Poster\]](#)

Teaching and Mentoring

Guest Lecturer

Rice University

Spring 2025
[Lecture recording](#)

- STAT 623/423: Probability in Bioinformatics and Genetics (lectures, review sessions, exam questions, office hours)

Student Mentor

MD Anderson Cancer Center

- Mentoring Ph.D. rotation students and laboratory interns.

Professional Service and Memberships

- **Journal Reviewer:** *Nature Reviews Cancer*; *Nature Genetics*; *Bioinformatics*; *Journal of the American Statistical Association*; *IEEE Transactions on Medical Imaging*.
- **Memberships:** Institute of Industrial and Systems Engineers (IISE); Institute for Operations Research and the Management Sciences (INFORMS); Institute of Electrical and Electronics Engineers (IEEE).