

# Xin Ma

Phone: +1-202-864-9415 Email: xin.ma@ufl.edu

## **RESEARCH INTEREST**

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Spatial multi-omics; single-cell multi-omics; AI methods for genomics; statistical genomics; Multi-modal data integration; Graph-based learning; Biomedical imaging;

## **EDUCATION**

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2022 – Present **University of Florida**, Gainesville, FL, USA

Ph.D. in Biostatistics (GPA: 3.94/4.0)

Advisors: Li Chen, Ramon Sun

2018 – 2020 **The George Washington University**, Washington, DC, USA

M.S. in Statistics (GPA: 3.9/4.0)

2014 – 2018 **Southwestern University of Finance and Economics**, Chengdu, China

B.S. in Actuarial Science

## **PUBLICATIONS**

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† indicates co-first author.

### **Peer-Reviewed Publications**

1. Clarke, H.A.<sup>†</sup>, **Ma, X.**<sup>†</sup>, Shedlock, C.J.<sup>†</sup>, et al. *Spatial mapping of the brain metabolome lipidome and glycome. Nature Communications*, 16, 4373 (2025).
2. **Ma, X.**<sup>†</sup>, Shedlock, C.J.<sup>†</sup>, Medina, T.<sup>†</sup>, et al. *AI-driven framework to map the brain metabolome in three dimensions. Nature Metabolism* (2025).
3. Clarke, H.A., Hawkinson, T.R., Clarke, H., et al., **Ma, X.** *Glycogen drives tumour initiation and progression in lung adenocarcinoma. Nature Metabolism* (2025).
4. **Ma, X.**, Thela, S.R., Zhao, F., et al. *Deep5hmC: predicting genome-wide 5-hydroxymethylcytosine landscape via a multimodal deep learning model. Bioinformatics*, 40(9), btae528 (2024).
5. Zhao, F., **Ma, X.**, Yao, B., et al. *Scada: A novel statistical method for differential analysis of single-cell chromatin accessibility sequencing data. PLOS Computational Biology*, 20(8) (2024).

### **Manuscripts Under Revision**

1. Ribas, R., Tang, Q., Caffee, S., et al., **Ma, X.**, Chen, L., Sun, R., et al. *Mass Spectrometry-based Spatial Imaging of the Cochlea. Journal of the American Society for Mass Spectrometry* (under revision).

2. Guarneri, J.W., Maghsoudi, Z., Kim, J., et al., **Ma, X.**, et al. *Guardians of the Mitochondria: Space Mitochondria 2.0 Systemic Analysis Reveals Bioenergetic Dysregulation Across Species. Cell* (under revision).
3. **Ma, X.**, Allison, D., Macedo, J.K.A., et al. *Machine learning-based prediction of clinical outcomes in glioblastoma using glycomics features. Computational and Structural Biotechnology Journal* (under revision).
4. **Ma, X.**, Jin, W., Lu, Q., et al. *Reference-Informed Detection of Spatial Domains Using Weak Supervision for Spatial Transcriptomics. Genome Research* (under revision).

### Manuscripts Under Review

1. Rodriguez-Palma, E., Gomez, K., Calderon-Rivera, A., et al., **Ma, X.**, et al. *A peptidomimetic inhibitor of moesin alleviates chronic pain by suppressing NaV1.7 and NaV1.8 channels. Science Translational Medicine* (under review).
2. Jin, W., Zhao, F., **Ma, X.**, et al. *DeepCNet: An interpretable deep learning model for inferring cell type-specific promoter-enhancer interactions from single-cell multiome data. Nature Communications* (under review).
3. Hawkinson, T.R., Liu, Z., Ribas, R.A., et al., **Ma, X.** *Hyper-Glycosylation as a Central Metabolic Driver of Alzheimer's Disease. Nature Metabolism* (under review).

### Preprints

## TALKS AND PRESENTATIONS

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### Oral Presentations

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| 2026 | ENAR Spring Meeting, Indianapolis, IN (upcoming).                                |
| 2024 | UF PHHP Research Days, Gainesville, FL.  |
| 2024 | Annual ASA Florida Chapter Meeting, Tallahassee, FL.                             |
| 2023 | Mark C. K. Yang Event, Gainesville, FL.  |
| 2023 | International Conference on Intelligent Biology and Medicine (ICIBM), Tampa, FL. |

### Poster Presentations

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| 2025 | ENAR, New Orleans, LA.   |
| 2025 | Winter Conference on Brain Research (WCBR), Lake Tahoe, CA.                            |
| 2024 | MidSouth Conference on Computational Biology and Bioinformatics (MCBIOS), Atlanta, GA. |
| 2023 | Florida Genetics Symposium, Gainesville, FL.   |

## HONOR AND AWARDS

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2024	MCBIOS Travel Fellowship.
2023	Mark C. K. Yang Student Presentation Award (University of Florida).
2018–2019	Dean’s Fellowship Award (The George Washington University).
2018	Outstanding Thesis Award (Southwestern University of Finance and Economics).
2014–2018	Outstanding Academic Performance Award (Southwestern University of Finance and Economics).
2015, 2016	Outstanding Social Practice Award (Southwestern University of Finance and Economics).

## ***PROFESSIONAL SERVICE***

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Journal Reviewer: PLOS ONE.

## ***TEACHING***

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### **Teaching Assistant**

Fall 2022	PHC 6089: Public Health Computing.
Fall 2022	PHC 6050: Statistical Methods for Health Science I.

## ***PROFESSIONAL EXPERIENCE***

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*2020 – 2022*      **TechData Service Company**, King of Prussia, PA, USA  
 Statistical Programmer and Database Developer

- Conducted statistical analysis for ~20 Phase I–III clinical trials using SAS; produced TLFs for safety and efficacy.
- Developed and validated CDISC SDTM/ADaM datasets; ensured regulatory-compliant data standards.
- Built and maintained EDC database builds (IBM Clinical Development), including edit checks and CRF modules.
- Drafted and revised Statistical Analysis Plans (SAPs) for multiple clinical trials.