

# Xiaoru Dong

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## EDUCATION

### University of Florida

*PhD in Biostatistics*

Advisor: Rhonda Bacher

May 2024 (Expected)

Major GPA 3.63/4.00

### University of Illinois at Urbana-Champaign

*Bachelor of Science in Statistics*

Dec 2018

Major GPA 3.89/4.00

## EXPERIENCE

### Graduate Research Assistant

Aug 2019-Present

- > Collaborate with interdisciplinary teams, including Dr. Todd Brusko and Dr. Philip Efron, at University of Florida College of Medicine to investigate molecular mechanisms underlying various diseases. Contribute to study design, data analysis, and the publication of findings in scientific journals.
- > Analyze scRNA-seq and bulk RNA-seq data using R to identify disease-associated factors, biomarkers, and provide insights to collaborators.
- > Develop novel computational methods for scRNA-seq data analysis, such as the creation of innovative algorithms for data-driven scRNA-seq trajectory evaluation aimed at identifying the most accurate trajectory.
- > Apply machine learning methods, such as random forest and lasso, to analyze high-dimensional omics datasets, such as genomic, epigenomic, cytokine, and immunophenotyping data.

### Graduate Teaching Assistant

Aug 2019-May 2023

- > Designed and executed innovative course materials, including developing homework assignments and creating Canvas pages, resulting in significant improvements in student learning outcomes.
- > Mentored and supported over 20 students per class, fostering increased engagement and higher performance levels.
- > Hosted weekly office hours, providing valuable coding guidance in R and SAS and clarifying key concepts for students.
- > Delivered comprehensive grading and constructive feedback, leading to measurable improvements in student work and overall course outcomes.
- > Led interactive classroom discussions and facilitated group activities to encourage critical thinking and foster a collaborative learning environment.

## PUBLICATIONS & PREPRINTS

Key: † indicates co-first authors; \* indicates corresponding authors.

Shapiro, M. R.†, **Dong, X.**†, Perry, D. J.†, McNichols, J. M., Thirawatananond, P., Posgai, A. L., Peters, L. D., Motwani, K., Musca, R. S., Muir, A., Concannon, P., Jacobsen, L. M., Mathews, C. E., Wasserfall, C. H., Haller, M. J., Schatz, D. A., Atkinson, M. A., Brusko, M. A., Bacher, R. L. \*, & Brusko, T. M\*. (2023). Human immune phenotyping reveals accelerated aging in type 1 diabetes. *JCI Insight*. <https://doi.org/10.1172/jci.insight.170767>

Jacobsen, L. M. †, Diggins, K. †, Blanchfield, L. †, McNichols, J. A., Perry, D. J., Brant, J., **Dong, X.**, Bacher, R., Gersuk, V. H., Schatz, D. A., Atkinson, M. A., Mathews, C. E., Haller, M. J., Long, S. A. \*, Linsley, P. S. \*, & Brusko, T. M\*. (2023). Responders to low-dose ATG induce CD4 T cell exhaustion in type 1 diabetes. *JCI Insight*. <https://doi.org/10.1172/jci.insight.161812>

**Dong, X.**, & Bacher, R. (2023). Analysis of Single-Cell RNA-seq Data. In B. Fridley & X. Wang (Eds.), *Statistical Genomics* (Vol. 2629, pp. 95–114). Springer US. [https://doi.org/10.1007/978-1-0716-2986-4\\_6](https://doi.org/10.1007/978-1-0716-2986-4_6)

**Dong, X.**, & Bacher, R. (2022). Data-driven assessment of dimension reduction quality for single-cell omics data. *Patterns*, 3(3), 100465. <https://doi.org/10.1016/j.patter.2022.100465>

Darden, D. B., **Dong, X.**, Brusko, M. A., Kelly, L., Fenner, B., Rincon, J. C., Dirain, M. L., Ungaro, R., Nacionales, D. C., Gauthier, M., Kladde, M., Brusko, T. M., Bihorac, A., Moore, F. A., Loftus, T., Bacher, R., Moldawer, L. L.,

Mohr, A. M., & Efron, P. A.\* (2021). A Novel Single Cell RNA-seq Analysis of Non-Myeloid Circulating Cells in Late Sepsis. *Frontiers in Immunology*, 12, 696536. <https://doi.org/10.3389/fimmu.2021.696536>

Ross, J. J., Wasserfall, C. H., Bacher, R., Perry, D. J., McGrail, K., Posgai, A. L., **Dong, X.**, Muir, A., Li, X., Campbell-Thompson, M., Brusko, T. M., Schatz, D. A., Haller, M. J., & Atkinson, M. A. (2021). Exocrine Pancreatic Enzymes Are a Serological Biomarker for Type 1 Diabetes Staging and Pancreas Size. *Diabetes*, 70(4), 944–954. <https://doi.org/10.2337/db20-0995>

## **PRESENTATIONS**

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“Data-driven Evaluation of Trajectories in Single-Cell RNA-Sequencing Data.” International Biometric Society Eastern North American Region (ENAR) Annual Meeting. March 2023. Nashville, TN, USA.

“Immune Phenotypic Profiling across the Human Lifespan Demonstrates Accelerated Immune Aging in Subjects with Type 1 Diabetes.” 2022 College of Medicine Research Day. April 2022. University of Florida, Gainesville, FL, USA.

“Analyzing Inclusion Criteria of 7000 Cochrane Systematic Reviews.” Undergraduate Research Symposium. April 2018. University of Illinois at Urbana-Champaign, Champaign, IL, USA.

“Distortions in Scientific Literature - A Replication Analysis of Greenberg’s Citation Network of 302 Alzheimer’s Science Research Papers.” Undergraduate Research Symposium. April 2018. University of Illinois at Urbana-Champaign, Champaign, IL, USA.

## **HONORS & AWARDS**

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Mark C. K. Yang Student Presentation Award	Oct 2023
Student Competition Award, American Statistical Association Florida Chapter	March 2023
Certificate in Data Science	Nov 2018
Successful Participant Award, Mathematical Contest in Modeling	Jan 2016

## **SKILLS**

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- > **Programming Languages:** Proficient in R/Rstudio for data analysis, with additional knowledge of SAS and Python programming languages.
- > **RNA-seq analysis:** Experienced in analyzing scRNA-seq and bulk RNA-seq data using tools such as Seurat, DESeq2, and edgeR.
- > **Consulting:** Skilled in consulting with researchers from diverse backgrounds, providing guidance and support for data analysis and interpretation.
- > **Communication:** Fluent in English and Chinese languages, with strong written and verbal communication skills.