Xiaoru Dong

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EDUCATION

University of Florida May 2024 (Expected)
PhD in Biostatistics Major GPA 3.63/4.00
Advisor: Rhonda Bacher

University of Illinois at Urbana-Champaign Dec 2018
Bachelor of Science in Statistics 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.

Dong, X., Leary, J. R., Yang, C., Brusko, M. A., Brusko, T. M., & Bacher, R*. (2023). *Data-driven selection of analysis decisions in single-cell RNA-seq trajectory inference* (p. 2023.12.18.572214). bioRxiv. https://doi.org/10.1101/2023.12.18.572214

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

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

"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.

ACADEMIC SERVICE

Journal reviewer

- BMC Bioinformatics, Scientific Reports

HONORS & AWARDS

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

- **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.