

Anderson Bussing

Education

- 2021 – 26 **Ph.D. in Statistics**, University of South Carolina - Columbia (USC)
Dissertation: Methods for analyzing gene co-expression in single-cell and spatial transcriptomic data
Advisor: Dr. Yen-Yi Ho
- 2019 – 21 **M.S. in Statistics**, University of Puerto Rico - Mayaguez (UPR)
Thesis: Goodness-of-fit testing in two dimensions
Advisor: Dr. Wolfgang Rolke
- 2012 – 16 **B.S. in Mechanical Engineering**, University of Texas - Austin (UT)
- 2010 – 15 **B.S. in Pure Mathematics**, University of Texas - Austin

Work Experiences

- Aug 2021 – present **Instructor**, *Department of Statistics*, USC
- Jan 2023 – Aug 24 **Research Assistant**, *Yen-Yi Ho Lab*, USC
- Jun 2019 – Mar 21 **Research Assistant**, *Profluent Trading LLC*, San Juan PR
- Jan 2019 – May 21 **Instructor**, *Department of Mathematics*, UPR
- Sep 2016 – Dec 18 **Operations Management Leadership Program**, *GE Oil & Gas*, Houston TX

Research Interests

- Computational Biology
- Joint Dependence Modeling
- Spatial Statistics
- Applications in Machine Learning and Data Science
- High-dimensional Data
- Semi-parametric Inference
- Statistical Consulting

Peer-reviewed Publications

- [1] **Bussing, A.**, Marra, G., Fan, D., Shinohara, R., Tu, D., & Ho, Y. Y. (2025+). scCOSMiX: A Mixed-Effects Framework for Differential Coexpression and Transcriptional Interactions Modeling in Single-Cell RNA-Seq. ***Statistics in Medicine***. To appear.

- [2] Yang, S., **Bussing, A.**, Marra, G., Brinkmeier, M., Camper, S., Davis, S., & Ho, Y. Y. (2025+). TIME-CoExpress: Temporal Trajectory Modeling of Dynamic Gene Co-expression Patterns Using Single-Cell Transcriptomics Data. **BMC Bioinformatics**. To appear.

Selected Ongoing Projects

- [1] A Risk Sharing Rule for Peer-to-peer (P2P) Insurance for Hail Losses via Conditional Expectation, Yizhou Cai, USC; Ting Fung Ma, USC
- [2] CORRespond: A spatial factor model for correlated ligand-receptor interactions in spatial transcriptomic data, Arkaprava Roy, University of Florida; Yen-Yi Ho, USC
- [3] Smoothing parameter selection criteria for penalized likelihood inference in semiparametric simultaneous joint equation models with spatially-correlated random effects, Giampiero Marra, University College London

Teaching Experiences

Instructor

Fall 2022, 24, 25, Elementary Statistics, USC
Spring 24, 25

Fall 2020, Spring 21 Precalculus II, UPR

Teaching Assistant

Spring 2023 Data Analysis II, USC

Selected Awards and Scholarships

2024 Outstanding Graduate Assistant, *Department of Statistics*, USC

2023 Outstanding Graduate Student in Academics, *Department of Statistics*, USC

2022 Outstanding First Year Graduate Student, *Department of Statistics*, USC

Computing

Software Development

scDECO R package for two different Bayesian models of differential coexpression, on [CRAN]

scCOSMiX R package for scCOSMiX method, on [GitHub]

FAST-CoExpress R package for TIME-CoExpress method, on [GitHub]

Stock-Backtester python package for backtesting rule-based stock trading strategies, on [GitHub]

Options-Pricer python implementation of three American options pricing methods, on [GitHub]

Computing Skills

Programming: Proficient in R and python. Some experience with MATLAB, SQL, VBA

Others: Experienced with SLURM (for high-performance computing)

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✉ abussing@email.sc.edu

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