Shane E. Ridoux

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EDUCATION

Doctor of Philosophy in Epidemiology (expected 2029)
Colorado School of Public Health

Master of Science in Statistics (2025)
University of Colorado – Denver

Bachelor of Arts in Mathematics (2023)
Trinity University

ACADEMIC RESEARCH

Master's Project (September 2024-May 2025)
Department of Mathematical and Statistical Sciences, University of Colorado.
Committee: Randi K. Johnson, Erin E. Austin, and Joshua P. French

- Developed a multi-stage analytic pipeline for genome-wide detection of epistasis, extending prior research on complement gene interaction in Type 1 Diabetes
- Applied information-theoretic measures and diffusion kernel principal component analysis to summarize within-gene epistasis
- Implemented a Bayesian nonlinear interaction model to prioritize gene-gene interactions across the genome
- Conducted pathway enrichment and SNP-level follow-up analyses to identify biologically relevant gene networks underyling Islet Autoimmunity
- Performed an extensive review of statistical and computational methods for modeling genetic interactions and addressing the multiple testing burden in high-dimensional data

Graduate Research Fellowship (March 2024-May 2025)
Colorado Center for Personalized Medicine, University of Colorado.
Supervisor: Randi K. Johnson

- Developed an analysis plan to investigate epistasis of targeted complement genes in Type 1 Diabetes
- Identified biologically relevant single nucleotide polymorphisms (SNPs) to target through literature review and consultation from complement system experts
- Discovered phase-specific combinations of SNPs associated with Type 1 Diabetes using data from a nested case-control study within the Diabetes Autoimmunity Study in the Young (DAISY) Cohort
- Collaborated with a multidisciplinary team, including physician-scientists, statisticians, and epidemiologists

Graduate Research Fellowship Rotation 3 (January 2024-March 2024)
Orthopedics, University of Colorado.
Supervisor: Cheryl Ackert-Bicknell

- Developed written procedure for utilizing the MicroCT machine to enhance reproducibility and consistency and ensured the best technique using statistical methodology for method comparison
- Evaluated the efficacy of an anabolic agent in the mitigation of bone loss
- Investigated genetic variability in response to a parathyroid hormone-mimicking drug in mice using advanced statistical methodologies

Graduate Research Fellowship Rotation 2 (October 2023-January 2024)
Colorado Center for Personalized Medicine, University of Colorado.
Supervisor: Joanne Cole

- Identified genetic factors contributing to food preference through a Genome-Wide Association Study in a food secure population within the UKBiobank

- Compared the results from the food secure population to a similar analysis in the full UKBiobank population under the assumption that adjusting for food security would better approximate food preference
- Researched and evaluated socio-economic status measures as proxies for assessing food security
- Utilized cloud-based platforms to efficiently store, manage, and analysize data

Graduate Research Fellowship Rotation 1 (August 2023-October 2023)
Colorado Center for Personalized Medicine, University of Colorado.
Supervisor: Randi K. Johnson

- Generated predicted gene expression for pancreas and whole blood tissues
- Identified phase-specific candidate genes in the progression of Type 1 Diabetes using PrediXcan
- Utilized cloud-based platforms to efficiently store, manage, and analysize data

Undergraduate Capstone Research (January 2023-May 2023)
Department of Mathematics, Trinity Universiy.
Supervisor: Eddy Kwessi

- Collaborated with mathematicians to evaluate the U.S. News & World Reports rankings
- Conducted a Bootstrap Simulation of Wilcoxon Ranked Sum Tests to discover what attributes make a top 20 ranked school and qualitatively evaluated if those attributes are desirable for top schools
- Applied the findings to suggest changes that Trinity University can make to attain their goal of becoming a top 20 Liberal Arts Institution
- Proposed an alternative ranking to the U.S. News & World Report that includes diversity and cost of attendance as additional ranking factors that would inform a student's decision

Undergraduate Researcher (October 2021-May 2022)
Department of Physics and Astronomy, Trinity Universiy.
Supervisor: David Pooley

- Collaborated with astrophysicists and peers to evaluate spectral emissions to understand the history and formation of supernovae

PROFESSIONAL AFFILIATIONS

Student Member, American Statistical Association
Student Member, International Genetic Epidemiology Society
Student Member, Society for Epidemiologic Research

AWARDS AND FELLOWSHIPS

2025	Dr. Jill Norris and Dr. V. Michael Holers Endowed Scholarship in Autoimmune Disease Epidemiology ($12,500), Colorado School of Public Health, Department of Epidemiology
2025	Scholarship for MS in Statistics Students ($500), University of Colorado – Denver, Department of Mathematical and Statistical Sciences
2025	Travel Award ($500), University of Colorado – Denver, Office of Graduate Education
2025	Travel Award ($500), University of Colorado – Denver, Department of Mathematical and Statistical Sciences
2025	Outstanding MS Graduate in Statistics, University of Colorado – Denver, Department of Mathematical and Statistical Sciences
2024	Young Researcher Travel Grant ($893.73), Immunology of Diabetes Society
2024	Travel Award ($500), University of Colorado – Denver, Office of Graduate Education
2024	Travel Award ($500), University of Colorado – Denver, College of Liberal Arts and Sciences
2024	Travel Award ($1,648.31), University of Colorado – Denver, Department of Mathematical and Statistical Sciences

2023-2025	Pathways in Genomic Data Science Fellow, University of Colorado – Denver
2023	Cum Laude in Mathematics, Trinity University: In recognition of overall academic study
2022	Induction into Kappa Mu Epsilon, National Mathematics Honor Society
2021	Dean's List, Trinity University
2019	President's Scholarship, Trinity University

CERTIFICATIONS

June 2025	Health Equity Action Lab Foundations Certificate
March 2023	Tableau Desktop Specialist

TEACHING EXPERIENCE

2017-Present	Academic Tutor – Algebra through Calculus I, Undergratuate level Biostatistics, Graduate level Statistical Inference and Probability Theory

MENTORING EXPERIENCE

Summer 2024-Present	Mentor, Pathways in Genomic Data Science, University of Colorado – Denver
Spring 2024	Judge and Mentor, CoorsTek Denver Metro Regional Science & Engineering Fair, Denver, Colorado
Spring 2023	Mentor, Prison Mathematics Project, San Antonio, TX

PROGRAMMING LANGUAGES

R, Stan, Python, Scala, LaTeX, LINUX, PLINK, CSS, HTML

PRESENTATIONS

April 2025	A Bayesian Detection of Epistasis Using Summarized Synergy Networks in Islet Autoimmunity, Master's Defense, University of Colorado – Denver
November 2024	Complement Activation Genetics in the Natural History of Type 1 Diabetes, Immunology of Diabetes Society Congress, Bruges, Belgium
April 2023	Evaluation of U.S. News and World Report Rankings and Trinity University's Position, Senior Capstone, Trinity University

POSTERS

April 2025	Complement Activation Genetics in the Natural History of Type 1 Diabetes, National Human Genome Research Institute Research Training and Career Development Annual Meeting, Philadelphia, Pennsylvania
May 2024	Rotations in Precision Medicine, Pathways in Genomic Data Science Retreat, University of Colorado – Denver