Jordan Rodu

University of Virginia
Department of Statistics
Halsey Hall
Charlottesville, VA 22904

Phone: (434) 982-2150
Email: jsr6q@virginia.edu

Education

University of Pennsylvania- The Wharton School, Philadelphia, Pennsylvania
Doctoral degree in **Statistics**, May 2014

Thesis: Theory of Estimation of Hidden State Space Models, and Their Applications

Advisor: Dean Foster

The Conductor's Institute at Bard College, Annandale-on-Hudson, NY
MFA in Orchestral Conducting, August 2006

Williams College Williamstown, MA
Bachelor of Arts degree in **Mathematics** with Departmental Honors May 2005

Thesis: Control Theory, Characterizing 2-cycles in n-dimensional space with stasis.
Advisor: Stewart Johnson

Relevant Work Experience

Associate Professor University of Virginia, Fall 2025– Present

Assistant Professor University of Virginia, Fall 2017 – Fall 2025

Teaching: Data Visualization and Presentation (Fall 2017, Fall 2018, Spring 2019), Statistical Machine Learning (Undergraduate: Spring 2018; Graduate: Fall 2018), Sports Analytics (Independent Study, co-taught with Jeffrey Holt, Spring 2019; Intro to Sports Analytics, Fall 2019, Fall 2021; Advanced Sports Analytics (Spring 2020, Spring 2021, Fall 2021, Fall 2022, Spring 2025), Statistical Text Analysis (Fall 2020); Capstone (Spring 2020, Spring 2023, Fall 2023, Spring 2024, Fall 2024, Spring 2025, Fall 2025), Applied Causal Inference (Fall 2022, Fall 2023), Applied Multivariate Statistics (Fall 2024), Statistical Literature (Fall 2025)

Visiting Assistant Professor Carnegie Mellon University, Fall 2014 – August 2017

Teaching: Data Graphics and Visualization (Spring 2015), Statistical Methods for Neuroscience (Spring 2016), Hidden Markov Models (Spring 2016, Fall 2016), Deep Learning (Fall 2016), Senior undergraduate research (Spring 2017)

Postdoc Advisor: Rob Kass; Focus: Statistical methods in the analysis of neural data

Teaching Assistant The Wharton School, Fall 2009 – Spring 2014

Undergraduate: Introductory Business Statistics Parts 1 and 2, Introductory Statistics, Stochastic Processes, Modern Regression for the Social, Behavioral, and Biological Sciences

MBA: Regression Analysis for Business, Accelerated Regression Analysis for Business, Statistical Modeling

Mathematics Teacher Mystic Valley Regional Charter School, Fall 2007 – Spring 2009

Develop curriculum for International Baccalaureate and college prep math courses. Implement curriculum in a classroom setting- class sizes 6-26 students, grades 9-12

Research

Submitted Publications

Rodu, Jordan, Alexandra F. Dejong (Submitted). *Plot panel analysis.*

Reid Dale, Jordan Rodu, Maria E. Currie, Mike Baiocchi (Submitted). *Data Gluttony: Epistemic Risks, Dependent Testing and Data Reuse in Large Datasets*

Noah Gade, Jordan Rodu (Submitted). *Nonlinear Permuted Granger Causality.*

Refereed Publications

Rodu, Brad, Nantaporn Plurphanswat, and Jordan Rodu. (2025) *Inaccurate and misleading meta-analysis of E-cigarettes and population-based diseases*. Internal and Emergency Medicine 2025: 1-8.

Jordan Rodu, Alexandra F. Dejong Lempke, Natalie Kupperman, Jay Hertel. (2024). *On leveraging machine learning Sport Science in the hypothetico-deductive framework.* Sports Medicine – Open, 10, 124. doi: 10.1186/s40798-024-00788-4

Bruce Leicht, Amelia S., Xavier D. Thompson, Robin M. Queen, Jordan S. Rodu, Michael J. Higgins, Kevin M. Cross, Brian C. Werner, Jacob E. Resch, and Joe M. Hart. (2024). *Analysis of Limb Loading and Lower Extremity Strength Recovery across Time after Anterior Cruciate Ligament Reconstruction*. Sports Health, Oct 14. doi: 10.1177/19417381241285859.

Leicht, Amelia S. Bruce, et al. (2024) *Prognostic Value Of Limb Loading During Early Functional Assessment For Predicting Later Jump Landing Performance Following ACLR*. Medicine and Science in Sports and Exercise. Vol. 56. No. 10.

DeJong Lempke, Alexandra F., Stephanie L. Stephens, Xavier D. Thompson, Joseph M. Hart, David J. Hryvniak, Jordan S. Rodu, and Jay Hertel (2024). *Transference of Outdoor Gait-Training to Treadmill Running Biomechanics and Strength Measures: A Randomized Controlled Trial*. Journal of Biomechanics. 2024;168:112095. *doi:10.1016/j.jbiomech.2024.112095*

Amelia Bruce Leicht, Xavier Thompson , Robin Queen , Jordan Rodu , Michael Higgins , Kevin Cross , Brian Werner , Jacob Resch , Joseph Hart (2024). *Comparison of Limb Loading Characteristics and Subjective Functional Outcomes Between Sexes Following ACLR*. Journal of Athletic Training, doi:10.4085/1062-6050-0534.23

Jordan Rodu, Michael Baiocchi. (2023). *When Black Box Algorithms Are (not) Appropriate: A Principled Prediction-Problem Ontology.* Observational Studies 9(2), 79-101. doi:10.1353/obs.2023.0018.

Klein, S., Baiocchi, M., Rodu, J., Baker, H., Rosemond, E., & Doyle, J. (2022). *An analysis of the Clinical and Translational Science Award pilot project portfolio using data from Research Performance Progress Reports*. Journal of Clinical and Translational Science, 6(1), E113. doi:10.1017/cts.2022.444

DeJong Lempke AF, Stephens SL, Fish PN, Thompson XD, Hart JM, Hryvniak DJ, Rodu JS, Hertel J. *Sensor-Based Gait-Training to Reduce Contact Time for Runners with Exercise-Related Lower Leg Pain: A Randomised Controlled Trial*. BMJ Open Sport & Exercise Medicine. 2022;8:e001293. doi:10.1136/bmjsem-2021-001293.

Alexandra F Dejong Lempke, Stephanie L Stephens, Pamela N Fish, Xavier D Thompson, Joseph M Hart, David J Hryvniak, Jordan Rodu, Jay Hertel (2023*). Running-Related Injuries Captured Using Wearable Technology during a Cross-Country Season: A Preliminary Study*. Translational Journal of the ACSM 8(1):e000217, Winter 2022. | DOI: 10.1249/TJX.0000000000000217

Alexandra F. DeJong Lempke, Joseph M. Hart, David J. Hryvniak, Jordan Rodu, Jay Hertel. *Prospective running assessments among division I cross-country athletes*. Physical Therapy in Sport. 2022;55:37-45. doi:10.1016/j.ptsp.2022.02.003

Jordan Rodu and Karen Kafadar (2022) *The q–q Boxplot*, Journal of Computational and Graphical Statistics, 31:1,26-39,DOI: 10.1080/10618600.2021.1938586

Alexandra F. DeJong Lempke, Joseph M. Hart, David J. Hryvniak, Jordan S. Rodu, Jay Hertel, *Use of wearable sensors to identify biomechanical alterations in runners with Exercise-Related lower leg pain,* Journal of Biomechanics, Volume 126, 2021, https://doi.org/10.1016/j.jbiomech.2021.110646.

Baiocchi, Michael and Jordan Rodu. *Reasoning Using Data: Two Old Ways and One New*. Observational Studies, vol. 7 no. 1, 2021, p. 3-12. Project MUSE, doi:10.1353/obs.2021.0016.

Jordan Rodu, 2021 (book review). "Text Analytics: Advances and Challenges. Domenica Fioredistella Iezzi, Damon Mayaffre and Michelangelo Misuraca Springer, 2020, xi + 302 pages, £95.50, eBook ISBN: 978-3-030-52680-1," International Statistical Review, International Statistical Institute, vol. 89(2), pages 429-431, August.

Niccolò Dalmasso (student, CMU), Jordan Rodu, Megan Price, Robin Mejia, Jared Murray, *Feature Engineering for Entity Resolution with Arabic Names: Improving Estimates of Casualties in the Syrian Civil War*. 2019, Artificial Intelligence for Humanitarian Assistance and Disaster Response Workshop

Tianyuan Zhou (student, UVA), Joao Sedoc, Jordan Rodu. *Getting in Shape: Word Embedding SubSpaces*. 2019, International Joint Conference on Artificial Intelligence (IJCAI)

Jordan Rodu, Natalie Klein, Scott L. Brincat, Earl K. Miller, Robert E. Kass. 2018. *Detecting multivariate cross-correlation between brain regions*. Journal of neurophysiology.

Robert E. Kass et al *Computational Neuroscience: Mathematical and Statistical Perspectives,* 2018, Annual Reviews of Statistics and Its Applications (doi: 10.1146/annurev-statistics-041715-033733).

Josue Orellana, Jordan Rodu, Robert E. Kass, *Population Vectors Can Provide Near Optimal Integration of Information*, 2017, Neural Computation, 29:2021-2029

Jordan Rodu, Dean Foster, Weichen Wu, Lyle Ungar, *Using Regression for Spectral Estimation of HMMs*, 2013, Statistical Language and Speech Processing - First International Conference. Proceedings. Lecture Notes in Computer Science 7978, Springer 2013

Paramveer Dhillon, Jordan Rodu, Dean Foster, Lyle Ungar, *Two Step CCA: A new spectral method for estimating vector models of words*, 2012, International Conference on Machine Learning.

Paramveer Dhillon, Jordan Rodu, Michael Collins, Dean Foster, Lyle Ungar, *Spectral Dependency Parsing with Latent Variables*, 2012, Empirical Methods in Natural Language Processing and Computational Natural Language Learning.

Talks

Invited, *When are `Black box' algorithms justified?* World Statistics Conference, The Hague NL, ***Upcoming* 2025**

Invited, *How to tell the difference between machine learning and (bio)statistics*, Stanford University, April 08, 2025+

Invited, *How to tell the difference between machine learning and (bio)statistics*, Berkeley University, April 10, 2025+

Invited, *Plot panel analysis,* Virginia Commonwealth University, November 14, 2024

Recent advances in fast estimation of high-dimensional hidden Markov models, JSM, 2024

Invited, *How to tell the difference between machine learning and (bio)statistics*, Duke University, April 17, 2024+

Invited, *How to tell the difference between machine learning and (bio)statistics*, University of North Carolina, April 15, 2024+

Invited, *How to tell the difference between machine learning and (bio)statistics*, North Carolina State University, April 11, 2024+

Invited, *How to tell the difference between machine learning and (bio)statistics*, Harvard Data Science Initiative, November 2, 2023+

Invited, *Outcome Reasoning: the under-discussed engine powering black box development*, Williams College, October 31, 2023+

Invited, *Machine Learning and the pursuit of knowledge—promises and pitfalls*, Quantitative Collaborative (UVA), October 18, 2023+

Invited, *Outcome Reasoning: the under-discussed engine powering black box development*, The Wharton School at the University of Pennsylvania, October 4, 2023+

Invited, *Outcome Reasoning: the under-discussed engine powering black box development*, Network of European Data Scientists, October 2, 2023+

Invited, *Outcome Reasoning: the under-discussed engine powering black box development*, Johns Hopkins, September 26, 2023+

Plot Panel Analysis, JSM, 2023

Invited, *Recent advances in fast estimation of high-dimensional hidden Markov models*, 6th International Conference on Econometrics and Statistics, August 1, 2023

Invited, *How to make cutting-edge NLP statistically boring and reliable*. University of California, San Francisco Department of Epidemiology and Biostatistics. May 2022+

Invited, *Understanding outcome reasoning and the rise of machine learning,* Virginia Commonwealth University, Department of Statistical Sciences and Operations Research, 2021

Invited, *Protecting yourself as a data scientist--how to make sure nontechnical collaborators share accountability when things go bad.* Data Science DC meeting, 2021

Invited, *On the need for more statistics in text analysis, with recent advances.* JSM 2021

When black box algorithms are (not) appropriate: a principled prediction-problem ontology. JSM 2020

Invited Seminar, *When black box algorithms are (not) appropriate: a principled prediction-problem ontology*. The statistics group at the RAND Corporation, March 11, 2020+

Invited, *The Principled Prediction-Problem Ontology: When Black Box Algorithms Are (Not) Appropriate*, Human and Machine Intelligence Group, University of Virginia, February 19, 2020

Invited, *The Certification Framework,* International Chinese Statistical Association, Raleigh, NC. 2019

Invited, *Towards Understanding Long Short Term Memory Networks,* Human and Machine Intelligence Group, University of Virginia, January 28, 2019

Invited, *Calcium Imaging: State of the Art and Future Challenges*, Eastern North American Region, International Biometric Society, Atlanta, GA, Mar 28, 2018.

Invited, *A Testing Framework for Open Response Questions*, Quantitative Collaborative, University of Virginia, Mar 15, 2018.

Invited, *Calcium Imaging: State of the Art and Future Challenges,* Computational and Methodological Statistics, London, UK Dec 18, 2017

Detecting Multivariate Cross-Correlation Between Brain Regions, *SAND 2017*

Clustering neurons in a microcircuit by firing patterns, *JSM 2015*

Factoring Hidden State Spaces for HMMs JMS 2013

Using Regression for Spectral Estimation of HMMs SLSP 2013

A factored spectral method for forecasting a vector-valued time series WIPFOR 2013

+ denotes joint talk with Michael Baiocchi, Stanford

JSM talks on which I am a co-author

Nonlinear Granger Causal Inference, JSM, 2024. Presenting author: Noah Gade

Incorporating Inconclusive Outcomes in Error Rate Estimation with Applications in Forensic Science, JSM, 2024. Presenting author: Sydney Campbell, with: Karen Kafadar

Interpretable classification and communication in Forensic Nursing, JSM, 2024. Presenting author: Karen Kafadar, with: Kathryn Laughon

Change Point Detection in Dependent, Multivariate Data with Conceptors, JSM 2023. Presenting author: Noah Gade

Measuring the Impact of Behavior Change Interventions Using Free-Text, JSM 2021. Presenting author: Michael Baiocchi

Causal Inference with Free-Text in Both Randomized and Observational Settings, JSM 2020. Presenting author: Michael Baiocchi

Dynamic Functional Connectivity in Nonstationary Task-Related Brain Imaging and Neural Recording Data, JSM 2017. Presenting author: Natalie Klein, with: Robert E. Kass and Valarie Ventura

Other Activities

Invited participant, *STATMOS 2019 Workshop.* Workshop for Spatial Statistics

Invited participant, *TADA 2019 Workshop.* 10th Annual New Directions in Analyzing Text as Data

Awards

Cochran Award, 2024 (Best publication in *Observational Studies* in previous 2 years), awarded for *When black box algorithms are (not) appropriate.*

Grants

Key Personnel (researcher) on NIMH grant RO1-MH064537, *Analysis of Non-Stationary Neural Data*, PI: Robert E. Kass

Teaching and Student Research at UVA

Teaching

Academic Year 2017-2018

Fall: STAT 4310 – Data Visualization and Presentation (newly offered at UVA)
Spring: STAT 4630 – Statistical Machine Learning (Undergraduate Level)

Academic Year 2018-2019

Fall: STAT 4310 – Data Visualization and Presentation
Fall: STAT 5630 – Statistical Machine Learning (Graduate Level)
Spring: STAT 4310—Data Visualization and Presentation
Spring: STAT 4993 – Sports Analytics Independent Study (Additional Course, 7 Students, co-taught with Jeff Holt, newly offered at UVA)

Academic Year 2019-2020

Fall: STAT 1800—Introduction to Sports Analytics (newly offered at UVA)
Spring: STAT 4800—Advanced Sports Analytics I (newly offered at UVA)
Spring: STAT 4996—Capstone (newly offered at UVA)

Academic Year 2020-2021

Fall: STAT 4559 (two sections)—Statistical Text Analysis (newly offered at UVA)
Spring: STAT 4800—Advanced Sports Analytics I (newly offered at UVA)

Academic Year 2021-2022

Fall: STAT 1800 (two sections)— Introduction to Sports Analytics
Fall: STAT 4800—Advanced Sports Analytics I
Spring (planned): on leave

Academic Year 2022-2023

Fall: STAT 5350— Applied Causal Inference
Fall: STAT 4800—Advanced Sports Analytics I
Spring: Capstone

Academic Year 2023-2024

Fall: STAT 5350— Applied Causal Inference
Fall: Capstone
Spring: Capstone

Academic Year 2024-2025

Fall: STAT 4130— Applied Multivariate Statistics (newly offered at UVA)
Fall: Capstone
Spring: STAT 4800—Advanced Sports Analytics I
Spring: Capstone

Student Research

Kyle Peterson, PhD Student Adviser, Expected: Spring 2027

Tyler Ashoff, PhD Student Adviser, Expected: Spring 2027

Sydney Campbell, PhD Student co-Adviser, Expected: Spring 2026

Isabella Femia, PhD Student Adviser, Expected: Spring 2026

Noah Gade, PhD Student Adviser, Spring 2024

James Lee, PhD Student, Committee member, Spring 2024

David Suarez-Perez, PhD Student, Committee member, Fall 2023

Xiaoyuan Ma, PhD Student, Adviser, Spring 2023

Amelia Bruce, PhD Student (Kinesiology) Committee member, Spring 2023

Mike Curtis, PhD Student (Kinesiology) Committee member, Spring 2023

Tianyuan Zhou, PhD Student, Adviser, Spring 2023

Ruizhong Miao, PhD Student co-Advisor, Spring 2022

Natalie Kupperman, PhD Student (Kinesiology), Committee member, Spring 2022

Alexandra Dejong, PhD Student (Kinesiology), Committee member, Spring 2021

Karen Pan, PhD Student, Committee member, Spring 2020

Xiaoyuan Ma, Masters Student, Adviser, Expected: Spring 2020

Taylor Brown, PhD Student, Committee member, Spring 2019

Service

Department

Faculty hiring committee member (2017-18, 2018-19, 2019-20, 2021-2022, 2022-2023, 2023-2024, 2024-2025)

Undergraduate Curriculum ReDesign Committee (2024-)

Sports Analytics and Statistics Laboratory, co-founder and co-director (2020-)

Cavalytics club advisor (2018-19 (inaugural year), 2019-20)

Justice, Equity, Diversity, and Inclusion (JEDI) committee member (2020-2021, 2021-2022)

University

Sports Science Institute, University of Virginia, inaugural committee member (2018-)

Focus group participant (2023, 2024)

Profession

Co-organizer, Scientific Program Committee of BIRS workshop: Mathematical and Statistical Tools for High Dimensional Data on Compressive Networks (to take place May 26-31, 2024)

Statistics Review Committee Member, *Preventing Chronic Disease Journal* (CDC) (2023-)

Program Chair, 2021, *Text Analysis Interest Group, American Statistical Association*

Program committee, *Third Workshop on Insights from Negative Results (2022)*

Program committee, *Second Workshop on Insights from Negative Results (2021)*

Program committee, *First Workshop on Insights from Negative Results (2020)*

Program-Chair Elect, 2020, *Text Analysis Interest Group, American Statistical Association*

Invited Session Organizer, *Statistical Challenges at the Intersection of Prediction and Causality*, International Chinese Statistical Association, Raleigh, NC. 2019

Reviewer: *Annals of Applied Statistics*; *Neurons, Behavior, Data Analysis & Theory; Neural Information Processing Systems (NeurIPS); PLoS One; First, Second, and Third Workshop on Insights from Negative Results; Journal of Applied Statistics; Journal of Computational and Graphical Statistics*