MICHAEL PEARCE

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University of Washington, Department of Statistics
Padelford Hall, Box 354322

EDUCATION

University of Washington, Seattle, WA — 2018 - Present
Ph.D. (anticipated) in statistics
Advised by Elena A. Erosheva

St. Olaf College, Northfield, MN — 2013 - 2017
B.A. in mathematics; concentration in statistics
Graduated *summa cum laude*

RESEARCH EXPERIENCE

Research Assistant — 2020 - Present
University of Washington - Department of Statistics
Supervisor: Elena A. Erosheva
Topic: Unified modeling of rankings and ratings with application to peer review.

Research Assistant — 2020 - 2021
University of Washington - Department of Statistics
Supervisor: Adrian E. Raftery
Topic: Bayesian forecasting of the maximum human lifespan to 2100.

Statistical Fellow — 2016 - 2017
St. Olaf College - Center for Undergraduate Research
Supervisors: Rodrigo Sanchez-Gonzalez and Matthew Richey
Topic: Increasing spatial resolution in molecular tagging velocimetry images via unsupervised learning.

SCHOLARLY PUBLICATIONS

Pearce, M. and Erosheva, E.A. "Modeling preferences: A Bayesian mixture of finite mixtures for rankings and ratings" *arXiv preprint arXiv:2301.09755* (2023).

Gallo, S.A., **Pearce, M.**, Lee, C.J., and Erosheva, E.A. "A new approach to peer review assessments: Score, then rank." *Research Integrity and Peer Review preprint: DOI: 10.21203/rs.3.rs-2198949* (2022).

Pearce, M. and Erosheva, E.A. "On the validity of bootstrap uncertainty estimates in the Mallows-Binomial model." *arXiv preprint arXiv:2206.12365* (2022).

Pearce, M. and Erosheva, E.A. "A unified statistical learning model for rankings and scores with application to grant panel review." *Journal of Machine Learning Research* 23.210 (2022): 1–33.

Pearce, M. and Raftery, A.E. "Probabilistic forecasting of maximum human lifespan by 2100 using Bayesian population projections." *Demographic Research* 44.52 (2021): 1271–1294.

Pearce, M.*, Sparrow, Z.*, Mabote, T. R., and Sanchez-Gonzalez, R. "stoBEST: An efficient methodology for increased spatial resolution in two-component molecular tagging velocimetry." *Measurement Science and Technology* 32.3 (2020): 035302

**indicates authors contributed equally.*

OTHER PUBLICATIONS

Pearce, M. and Raftery, A.E. "Will this be a record-breaking century for human longevity?" *Significance* (2021).

Pearce, M. and Raftery, A.E. "The maximum human life span will likely increase this century, but not by more than a decade" *The Conversation* (2021).

SOFTWARE

rankrate: Statistical Tools for Preference Learning with Rankings and Ratings. R package available on CRAN.

SELECTED MEDIA COVERAGE

BBC News (Brazil) "Por que cada vez mais pessoas estão vivendo até os 100 anos?" (July 11, 2022)

Stats and Stories (Podcast) "The Age of the Supercentenarian" (April 29, 2022) `https://statsandstories.net/health1/the-age-of-the-supercentenarian`.

Washington Post "Want to add healthy years to your life? Here's what new longevity research says." (Oct. 11, 2021)

Southern Weekly (China) "What is the limit of human life span?" (Sept. 16, 2021)

CNBC "Researchers say the probability of living past 110 is on the rise — here's what you can do to get there" (July 17, 2021)

Elemental (Medium) "How Long Can Humans Really Live?" (July 15, 2021)

Gulf News "Surviving up to 150: How long can a person live?" (July 12, 2021

Indian Express "Can a person live to age 124, 135 or 150? Some optimism, some caveats" (July 6, 2021)

The South African "Rise of the supercentenarians: Today's kids could live for 130 years" (July 4, 2021)

UW News "How long can a person live? The 21st century may see a record-breaker" (July 1, 2021)

TEACHING AND MENTORSHIP

Instructor of Record
University of Washington
Introduction to R for Social Scientists (CSSS 508) — Autumn 2022

Teaching Assistant
University of Washington
Applied Statistics Capstone (STAT 528) — Winter 2021, Winter 2022
Multivariate Data Analysis for the Social Sciences (CSSS 589) — Autumn 2021
Statistics and Philosophy of Voting (STAT 498 / CSSS 594) — Autumn 2020
Elements of Statistical Methods (STAT 311) — Autumn 2018, Winter 2019
Introduction to Probability and Mathematical Statistics III (STAT 342) — Spring 2019
Statistical Reasoning (STAT 220) — Autumn 2019

Directed Reading Program Mentor
University of Washington
"Social Choice Analysis of Peer Review Data" — Spring 2022
"Voting, Ranking, and Preference Modeling" — Autumn 2021
"Nonlinear Regression" — Winter 2020, Winter 2021, Spring 2021
"History and Practice of Data Communication" — Autumn 2020

Washington eXperimental Mathematics Lab (WXML) Mentor
University of Washington
"Improving Panel Consensus Tool (ImPaCT)" Autumn 2021

Supplemental Instruction Leader
St. Olaf College
Calculus II (MATH 126) Spring 2017
Modern Computational Mathematics (MATH 242) Spring 2017

Student Mentor
TRiO Upward Bound
Mentor for high school students from underrepresented communities in the Minneapolis and St. Paul public school systems. 2013 - 2015

PROFESSIONAL EXPERIENCE

Boeing Research and Technology 2019 - 2020
Applied Statistics Intern

Performed research involving nonparametric statistics, design of experiments, and aircraft COVID-19 modeling. Formulated, developed, and tested web-based statistical tools for company engineers. Consulted across the company, including end-to-end analysis and communication of findings.

Deloitte LLC 2017 - 2018
Analytics Consultant

Verified the accuracy and completeness of complex statistical models for a financial client to ensure compliance with regulatory stress-testing. Analyzed anti-money laundering policies and practices for a global bank.

CONFERENCE PARTICIPATION

NeurIPS, New Orleans, LA December 2022
"A Unified Statistical Learning Model for Rankings and Scores with Application to Grant Panel Review" (Journal-to-Conference Track Poster Session)

Joint Statistical Meetings, Washington, D.C. August 2022
"Using ranking data for decision-making" (topic-contributed paper session; organizer and chair)
"Fast Bayesian estimation for ranking models" (speed session)

ISBA World Meeting, Montreal, Canada June 2022
"Joint Bayesian inference for rankings and ratings under heterogeneous preferences" (poster session)

Working Group on Model-Based Clustering, Athens, Greece (virtual) October 2021
"Unified latent class modeling of scores and rankings applied to grant panel review" (poster session)

Joint Statistical Meetings, Seattle, WA (virtual) August 2021
"Unified latent class modeling of score and rank data applied to grant panel review" (speed session)

International Conference on Machine Learning (virtual) July 2021
Workflow Chair (ranked data processing)

MAA MathFest, Chicago, IL July 2017
"A new method for computational analysis of high-speed gas flows" (Pi Mu Epsilon student paper session)

National Conference on Undergraduate Research, Memphis, TN April 2017
"Analysis of high-speed gaseous flows using molecular tagging velocimetry and the Hough transform" (poster presentation)

HONORS AND AWARDS

Scholar Award *(NeurIPS)* 2022

Dorothy M. Gilford Award *(University of Washington)* 2021
"For outstanding performance by a graduate teaching assistant during the prior year."

Phi Beta Kappa *(St. Olaf College)* 2017
Liberal arts honor society

Pi Mu Epsilon *(St. Olaf College)* 2016
Mathematics honor society; elected treasurer in 2017

READING GROUP AND LAB PARTICIPATION

Statistical and ML Methodology for the Social Sciences Working Group	2021 - Present
Applied Bayesian and Computational (ABC) Statistics Working Group	2019 - Present
Statistics Education Reading Group	2019 - Present

SERVICE AT UNIVERSITY OF WASHINGTON

Pre-Application Review Service (PARS) – reviewer	2022
Queer Union for (Bio)statistician Inclusion and Community (QUBIC) – founder	2022 - Present
Diversity, Inclusion, Community, and Equity (DICE) Committee – member	2020 - Present
Directed Reading Program – member	2020 - Present
Undergraduate Curriculum Revamp Committee – member	2021 - 2022
PhD Admissions Committee – reviewer	2020 - 2021
Statistics Education Reading Group – organizer	2019 - 2021