Ethan Ancell

Website: ethanancell.com
Email: ancell@uw.edu
LinkedIn: ethanancell
Google Scholar: Ethan Ancell

Education

Ph.D. in Statistics (Advisor: Daniela Witten) — June 2027 (Expected)
University of Washington — Seattle, WA

M.S. in Statistics — December 2025
University of Washington — Seattle, WA

B.S. in Mathematics — May 2022
Utah State University — Logan, UT

Publications

Published

1. M. Kong, **E. Ancell**, D. Witten, L. Zweifel, "Valence and salience encoding in the central amygdala", *eLife 13:RP101980*, 2024.

Accepted

1. M. Hjort, Z. Garrett, **E. Ancell**, M. Bruchas, D. Witten, N. Steinmetz, G. Stuber, "Neural dynamics of a prefrontal cortex to ventral tegmental area circuit drive cognitive flexibility by accelerating contingency degradation", 2024. To appear in *Nature*.

Submitted

1. D. Marcus, A. English, G. Chun, E. Seth, R. Oommen, S. Hwang, B. Wells, S. Piantadosi, A. Suko, S. Kenmochi, A. Parasnis, **E. Ancell**, Y. Li, L. Zweifel, B. Land, N. Stella, "Endocannabinoids facilitate transitory reward engagement through retrograde gain-control", 2026.

2. **E. Ancell**, D. Witten, D. Kessler, "Post-selection inference with a single realization of a network", *arXiv preprint arXiv:2508.11843*, 2025.

3. A. Gordon-Fennell, B. Benowitz, J. Barbakh, I. Montequin, A. Campuzano, H. Stevenson, E. Lu, M. Hjort, **E. Ancell**, M. Critz, D. Witten, and G. Stuber, "Lateral hypothalamic glutamate and GABA neurons cooperatively shape striatum-wide dopamine dynamics during consumption", *bioRxiv preprint,* 2025.

Technical Reports

1. **E. Ancell**, P. Xiao, B. Debusschere, C. Bennett, P. Hays, "An out-of-distribution discriminator based on Bayesian neural network epistemic uncertainty", *arXiv preprint arXiv:2210.10780*, 2022.

2. **E. Ancell** and B. Bean, "Autocart – spatially-aware regression trees for ecological and spatial modeling", *arXiv preprint arXiv:2101.08258*, 2021.

Work Experience

Statistical Consultant — September 2022 - Current
UW Center of Excellence in Neurobiology of Addiction, Pain, and Emotion (NAPE) — Seattle, WA

- Provided statistical consulting for graduate students, postdoctoral fellows, and faculty involved with the UW Center of Excellence in Neurobiology of Addiction, Pain, and Emotion
- Developed methods to conduct valid inference on regression relationships between neural data and behavior in in neuroscience experimental trails
- Presented periodically in NAPE seminars and training events, instructing neuroscientists in modern statistical methodology

Statistical Consultant January 2026 - March 2026
Center for Statistics and the Social Sciences (CSSS) Seattle, WA

- Held hour-long consulting sessions with 18 clients in the Winter 2026 quarter at UW for PhD students, postdoctoral fellows, research staff, and faculty in fields spanning social science, political science, psychology, nursing, biology, environmental science, and social work

Research and Development Intern June 2023 - September 2023
Sandia National Laboratories (Advisors: T. Patrick Xiao and Christopher Bennett) Albuquerque, NM

- Designed simulations to compare methods for signal detection, including a comparison between theoretically derived optimal detectors and neural network based approaches

Research and Development Intern May 2022 - August 2022
Sandia National Laboratories (Advisors: Bert Debusschere and T. Patrick Xiao) Livermore, CA

- Wrote a technical report covering a method for out-of-distribution detection using Bayesian neural network epistemic uncertainty
- Trained Bayesian neural networks with Tensorflow for computer vision regression tasks with military and government applications

Statistics Research Intern May 2021 - August 2021
Utah Climate Center (Advisor: Brennan Bean) Logan, UT

- Implemented and researched statistical methods for a sub-seasonal high-resolution soil moisture forecasting platform
- Used R and Python code to automate the estimation of volumetric soil moisture at a 2-kilometer resolution at 6-hourly intervals using the University of Utah's Center for High Performance Computing platform
- Implemented a testing process to select an optimal spatial statistics model for use in the forecasting platform, including linear models, random forests, and generalized additive models with splines on the sphere

Presentations

Invited Seminars

- **Ancell, E.**, Witten, D., & Kessler, D. "Post-selection inference with a single realization of a network." IDEAS Seminar hosted by the Department of Statistics and Operations Research at the University of North Carolina, February 12, 2026. Chapel Hill, NC.
- **Ancell, E.**, & Witten, D. "Determining statistical significance in behavioral-neural activity linear models." Imaging & Genetics Workshop hosted by the UW Center of Excellence in Neurobiology, Addiction, Pain, and Emotion, September 19, 2025. Seattle, WA.
- **Ancell, E.**, & Witten, D. "Determining statistical significance in behavioral-neural activity linear models." Imaging & Genetics Workshop hosted by the UW Center of Excellence in Neurobiology, Addiction, Pain, and Emotion, October 25, 2024. Seattle, WA.
- **Ancell, E.**, & Witten, D. "Determining statistical significance in behavioral-neural activity linear models." NAPE Computational Seminar, hosted by the UW Center of Excellence in Neurobiology, Addiction, Pain, and Emotion, April 28, 2024. Hosted virtually.

Conference Presentations

- **Ancell, E.**, & Moon, K. "Ensemble kernel density estimation." National Conference for Undergraduate Research, April 6, 2022. Hosted virtually.
- **Ancell, E.**, & Bean, B. "Autocart: spatially aware regression trees for ecological and spatial modeling." Joint Statistical Meetings Speed Sessions, August 11, 2021. Hosted virtually.
- **Ancell, E.**, & Moon, K. "Ensemble kernel density estimation." Utah State University Student Research Symposium, April 11, 2021. Hosted virtually.
- **Ancell, E.**, & Bean, B. "Autocart: spatially aware regression trees for ecological and spatial modeling." Utah Research on Capitol Hill, February 2, 2021. Hosted virtually.
- **Ancell, E.**, & Bean, B. "Autocart: spatially aware regression trees for ecological and spatial modeling." USU Fall Student Research Symposium, December 10, 2020. Hosted virtually.
- **Ancell, E.**, & Bean, B. (2020, October). "Autocart: spatially aware regression trees for ecological and spatial modeling." SIAM Northern States Section Student Chapters Conference, October 16, 2020. Hosted virtually.

Poster Sessions

- **Ancell, E.**, Witten, D., & Kessler, D. "Post-selection inference with a single realization of a network." Conference on Stress, Pain, Emotion, Addiction, and Reward (SPEAR), March 11, 2026. Friday Harbor, WA.

Teaching

Instructor of Record

- **CSSS Math Camp**, University of Washington — September 2025
  Co-taught with Todd Nobles (Department of Sociology)
- **Review of Mathematics for Social Scientists (CSSS 505)**, University of Washington — Winter 2025

Teaching Assistant

- **Statistical Machine Learning for Data Scientists (DATA 558)**, University of Washington — Spring 2025
  Instructed by Daniela Witten (Professor, Departments of Statistics and Biostatistics)
- **Nonparametric Regression and Classification (STAT/BIOST 527)**, University of Washington — Spring 2024
  Instructed by Eardi Lila (Assistant Professor, Department of Biostatistics)
- **Modern Regression Methods (STAT 5100**, Utah State University — Spring 2021
  Instructed by Brennan Bean (Associate Professor, Department of Mathematics and Statistics)
- **Introduction to Statistics (STAT 1045)**, Utah State University — Fall 2019, Spring 2020, Fall 2020
  Instructed by KimberLeigh Hadfield (Senior Lecturer, Department of Mathematics and Statistics)

Guest Lecturer

- **Linear Regression and Maximum Likelihood Estimation** — April 9, 2025
  Statistical Machine Learning for Data Scientists (DATA 558), University of Washington
- **Random Forests** — May 29, 2024
  Nonparametric Regression and Classification (STAT/BIOST 527), University of Washington

Honors and Awards

- **Dorothy M. Gilford Teaching Award**
  Awarded by the Department of Statistics at the University of Washington for excellence in teaching December 2025
- **Utah State University College of Science Scholar of the Year**
  Awarded to a single senior in the USU College of Science in the 2021-2022 academic year April 2022
- **Barry M. Goldwater Scholarship**
  Nationally recognized award for undergraduate excellence in STEM research and academics March 2021
- **Peak Research Fellowship**
  Fellowship funded by David and Terry Peak at Utah State University supporting an independent undergraduate summer research project June 2020
- **Undergraduate Research and Creative Opportunities Grant**
  Fellowship supporting an independent undergraduate summer research project at Utah State University June 2020
- **Robert and Christi Heal Scholarship**
  Merit-based scholarship for a junior majoring in statistics August 2020
- **USU Math/Statistics Recitation Leader of the Year**
  Awarded by the USU Department of Mathematics and Statistics for excellence as a teaching assistant and recitation leader April 2019
- **Utah State University Dean's Admission Scholarship** August 2018

Service and Mentoring

- **UW Statistics Directed Reading Program (DRP) Coordinator**
  Managed and facilitated an undergraduate research program in the Department of Statistics, pairing undergraduate mentees with graduate mentors for quarter-long reading projects June 2024 - Current
- **UW Statistics Directed Reading Program (DRP) Mentor**
  Project Topics and Mentee(s):
  - Statistical Inference for Relative Risk and Odds Ratios — Winter 2026
    - Lily Yao (*Undeclared major*)
  - Asymptotics Without The Sample Size Going to Infinity — Winter 2026
    - Andy Zhang (*B.S. Statistics*)
  - Multiple Testing — Autumn 2025
    Co-mentored with Kayla Irish, Department of Statistics at UW
    - Elly Lee (*B.S. Statistics, Data Science Track*)
    - Maia Czerwonka (*B.S. Statistics and Psychology*)
  - Statistics for Weather and Avalanche Forecasting — Spring 2025
    Co-mentored with Clinton Alden, Mountain Hydrology Research Group at UW
    - Joey Huang (*B.S. Statistics*)
  - Survival Analysis — Winter 2025
    - Alexis Destefano (*B.S. Statistics*)
    - Sherry Ren (*B.S. Statistics*)
  - Robust Statistics — Autumn 2024
    - Yu He Zhang (*B.A. Statistics, M.S. Statistics at UW*)
    - Anthony Xing (*B.S. Computer Science and Mathematics*)
  - Data Splitting and Thinning — Spring 2024
    - Hansen Zhang (*B.S. Statistics with Honors, and M.S. Statistics at UW*)

- Random Matrix Theory — Winter 2024
  - Abigail Cummings (*B.A. International Relations and National Security Studies*)
  - Hansen Zhang (*B.S. Statistics with Honors, and M.S. Statistics at UW*)
- Information Theory — Autumn 2023
  - Abigail Cummings (*B.A. International Relations and National Security Studies*)
- Classical Papers in Statistics — Spring 2023
  - Janice Kim (*M.S. Data Science at UW, Data Analyst at Tesla*)
- Statistics in Neuroscience — Winter 2023
  - David Ye (*B.S. Applied and Mathematical Computational Sciences, ML Engineer at AI Institute in Dynamical Systems*)

- **1st Round Reviewer for UW Department of Statistics PhD Admissions Committee** — December 2024, 2025
- **UW Department of Statistics MS Theory Exam Tutor** *(1st year qualifying theory exam for MS and PhD students)* — Spring 2024
- **Mentor for The Pacific Alliance for Low-Income Inclusion in Statistics and Data Science (PALilSaDS)** — February 2024 - December 2025
- **Reviewer for UW Department of Statistics Pre-Application Review Service** — Autumn 2022, 2023, 2024
- **USU Data Science Club President** — August 2021 - May 2022

Professional Membership

- **American Statistical Association** — June 2021 - Current