

# Robin Dunn

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## Education

### Carnegie Mellon University

PITTSBURGH, PA

#### PhD in Statistics

Aug 2016 – July 2021

Thesis topic: *Advances in Nonasymptotic and Nonparametric Inference*.

Co-advisors: Larry Wasserman, Aaditya Ramdas.

#### Master of Science in Statistics

Aug 2016 – May 2017

### Kenyon College

GAMBIER, OH

#### Bachelor of Arts in Mathematics, Scientific Computing Concentration

Aug 2012 – May 2016

Valedictorian, Highest Honors in Mathematics, Distinction on Mathematics Senior Exercise.

Phi Beta Kappa. GPA: 4.0.

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## Experience

### Novartis Pharmaceuticals Corporation

EAST HANOVER, NJ

Senior Principal Statistical Consultant

May 2023 – present

Principal Statistical Consultant

Sept 2021 – May 2023

Implement state-of-the-art statistical methods, models, and machine learning at the trial and project level. Advanced Exploratory Analytics group of the Advanced Methodology & Data Science team.

Biostatistics PhD Intern

May 2017 – Aug 2017

Analyzed data from the Osteoarthritis Initiative's ten-year longitudinal database. Constructed predictive models for knee replacements, explored missing data methods, and applied joint models for longitudinal and time-to-event data. Presented on several international conference calls.

### Carnegie Mellon University Department of Statistics & Data Science

PITTSBURGH, PA

Research Assistant

Aug 2016 – July 2021

Research Collaborator for CMU / Novartis Partnership

Feb 2020 – Sep 2020

Collaborated on analysis of a personalized medicine cancer treatment, through a [partnership](#) between Novartis Pharmaceuticals and Carnegie Mellon's Department of Statistics & Data Science. Developed multistate models for patient progression from pre-treatment through follow-up. Consulted with physicians, statisticians, and biometricians. Presented on twice weekly international conference calls.

Instructor for 36-315: Statistical Graphics and Visualization

May 2019 – June 2019

Developed course materials, presented lectures, led labs, and held office hours.

Topics: choosing and interpreting graphics, mastering ggplot, interactive graphics with shiny.

Head Teaching Assistant

Aug 2018 – Dec 2019

Held office hours, led lab sections, graded assignments, coordinated course logistics, filled in for lecture.

Courses: Statistical Graphics and Visualization (36-315), Advanced Methods for Data Analysis (36-402/608), Data Mining (36-462/662).

Research Mentor for Summer Undergraduate Research Experience in Statistics

May 2018 – July 2018

Student advisees: Alexander Asemota, Sophia Hecht, Daniel Rodriguez

Faculty supervisors: Anjali Mazumder, Chad Schafer

Mentored students to identify research directions on data science for justice. Provided guidance on R tools (ggplot, data.table, shapefiles) and statistical models (generalized linear models, random forests, spatiotemporal ETAS models). Students presented their final work at a departmental seminar and at the poster session of the American Statistical Association's 2018 StatFest.

### Kenyon College Office of Institutional Research

GAMBIER, OH

Institutional Research Student Consultant

Aug 2013 – June 2016

Analyzed survey data in R, wrote reports on statistical findings, hosted focus groups, and interpreted data to support professors applying for grants. Created a Tableau [data visualization](#) of majors and careers of Kenyon graduates.

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## Publications

- [1] Robin Dunn, Aditya Gangrade, Larry Wasserman, and Aaditya Ramdas. Universal Inference Meets Random Projections: A Scalable Test for Log-Concavity. *Journal of Computational and Graphical Statistics*, 2024. URL <https://doi.org/10.1080/10618600.2024.2347338>. R package: [LogConcaveUniv](#). Accepted preprint.
  - [2] Robin Dunn, Larry Wasserman, and Aaditya Ramdas. Distribution-Free Prediction Sets for Two-Layer Hierarchical Models. *Journal of the American Statistical Association*, 118(544):2491–2502, 2023. URL <https://doi.org/10.1080/01621459.2022.2060112>. R package: [ConformalTwoLayer](#).
  - [3] Robin Dunn, Aaditya Ramdas, Sivaraman Balakrishnan, and Larry Wasserman. Gaussian Universal Likelihood Ratio Testing. *Biometrika*, 110(2):319–337, 2023. URL <https://doi.org/10.1093/biomet/asac064>. R code: [GaussianUniv\\_sims](#).
  - [4] Robin Dunn, Joel Greenhouse, David James, David Ohlssen, and Peter Mesenbrink. Risk Scoring for Time to End-Stage Knee Osteoarthritis: Data from the Osteoarthritis Initiative. *Osteoarthritis and Cartilage*, 28(8):1020–1029, 2020. URL <https://doi.org/10.1016/j.joca.2019.12.013>.
  - [5] Niccolò Dalmaso\*, Robin Dunn\*, Benjamin LeRoy\*, and Chad Schafer. A Flexible Pipeline for Prediction of Tropical Cyclone Paths. *ICML Workshop on Climate Change: How can AI help?*, 2019. URL <https://www.climatechange.ai/papers/icml2019/14>.  
\*Equal contributions. R package: [TCpredictionbands](#).
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## Short Courses

### Causal Inference in Randomized Controlled Trials

*Joint Statistical Meetings*

Aug 2023, Aug 2024

*International Society for Biopharmaceutical Statistics*

Mar 2024

*ICSA Applied Statistics Symposium*

June 2023

Overview of causal inference, relevant regulatory guidances, common estimation methods, hypothetical and principal stratum strategies for intercurrent events, and conditional and marginal estimands. Presented with Mouna Akacha (JSM '23), Björn Bornkamp (JSM '24), Shanti Gomatam (JSM '23, '24), Jiarui Lu (ICSA, ISBS), Tianmeng Lyu (ICSA, JSM '23), Bohdana Ratitch (JSM '24), Kaspar Rufibach (JSM '23), and Dong Xi (ICSA, ISBS). Code: [Causal-inference-in-RCTs](#).

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## Selected Presentations

- 1. “Covariate adjustment in randomized trials: discussion,” Society for Clinical Trials. Boston, MA. May 2024. Discussant for invited session on Covariate adjustment in randomized trials.
  - 2. “Learnings from a pharmaceutical covariate adjustment challenge,” International Symposium on Biopharmaceutical Statistics. Baltimore, MD. March 2024. Invited session on Covariate adjustment in randomized clinical trials.
  - 3. “Universal inference meets random projections: a scalable test for log-concavity,” Joint Statistical Meetings. Toronto, Ontario, Canada. August 2023. Contributed paper session on Geometric methods to nonparametric inference.
  - 4. “Hypothesis testing with universal inference,” Kenyon College Math Department. Gambier, OH. April 2023. Invited seminar for Pi Mu Epsilon math honor society induction ceremony.
  - 5. “A risk score for end-stage knee osteoarthritis,” Carnegie Mellon University course on Applied Survival Analysis. Virtual. February 2022. Invited guest presentation.
  - 6. “Distribution-free prediction sets,” Kenyon College Math Department. Virtual. April 2021. Invited departmental seminar.
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## Honors and Awards

### PhD Teaching Assistant of the Year

May 2019

*Carnegie Mellon University Department of Statistics & Data Science*

Awarded for head TA performance in 36-402/608: Advanced Methods for Data Analysis (Spring 2019).

**Gertrude M. Cox Scholarship**

Apr 2016

*ASA Committee on Women in Statistics and Caucus for Women in Statistics*

Awarded yearly to one woman in or entering the early stages of graduate statistical training (MS or PhD) and to one woman in a more advanced stage of training.

**Reginald B. Allen Prize**

Apr 2016

*Kenyon College Department of Mathematics & Statistics*

Awarded each year to a student whom the professors of the Department of Mathematics decide has done the most outstanding work in mathematics.

**NSF Graduate Research Fellowship**

Mar 2016

*National Science Foundation*

Recognizes and supports outstanding graduate students in NSF-supported science, technology, engineering, and mathematics disciplines who are pursuing research-based master's and doctoral degrees.

**Goldwater Scholar**

Mar 2015

*Barry Goldwater Scholarship and Excellence in Education Foundation*

National award for undergraduate students interested in pursuing scientific research careers.

**CAUSE Undergraduate Statistics Class Project Competition, third place**

Jul 2013

*Consortium for the Advancement of Undergraduate Statistics Education*

Won third place in a national competition for a project titled "Studies on Water Components" that used bootstrapping statistical methodology to analyze water sampling data.

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**Service**

Peer reviewer

2019 – present

*Journal of the American Statistical Association* (2024), *Journal of Survey Statistics and Methodology* (2023), *Pharmaceutical Statistics* (2023), ECML PKDD PharML workshop (2022, 2023), Climate change workshops (ICLR 2023; ICML 2021; NeurIPS 2019, 2020, 2021, 2022), *Journal of Machine Learning Research* (2019)

PhD student mentor

2018, 2020