

# 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

*International Biometric Conference*

<sup>1</sup>Dec 2024 (upcoming)

*Joint Statistical Meetings*

<sup>2</sup>Aug 2023, <sup>3</sup>Aug 2024

*International Society for Biopharmaceutical Statistics*

<sup>4</sup>Mar 2024

*ICSA Applied Statistics Symposium*

<sup>5</sup>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<sup>2</sup>, Björn Bornkamp<sup>3</sup>, Frank Bretz<sup>1</sup>, Shanti Gomati<sup>23</sup>, Jiarui Lu<sup>145</sup>, Tianmeng Lyu<sup>25</sup>, Bohdana Ratitch<sup>3</sup>, Kaspar Rufibach<sup>2</sup>, and Dong Xi<sup>45</sup>.  
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