

# Robin Dunn

Novartis Pharmaceuticals Corp • East Hanover, NJ 07936 • dunn.robinn.m@gmail.com • [robinmdunn.github.io](https://github.com/robinmdunn)

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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

#### Principal Statistical Consultant

Sept 2021 – present

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

Advisors: Peter Mesenbrink (primary), David James, David Ohlssen

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 for 36-462/662: Data Mining

Aug 2019 – Dec 2019

#### Head Teaching Assistant for 36-402/608: Advanced Methods for Data Analysis

Jan 2019 – May 2019

#### Head Teaching Assistant for 36-315: Statistical Graphics and Visualization

Aug 2018 – Dec 2018

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

#### 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, Larry Wasserman, and Aaditya Ramdas. Distribution-Free Prediction Sets for Two-Layer Hierarchical Models. *Journal of the American Statistical Association*, 0(ja):1–29, 2022. URL <https://doi.org/10.1080/01621459.2022.2060112>.  
R package: [ConformalTwoLayer](#).
  - [2] Robin Dunn, Larry Wasserman, and Aaditya Ramdas. Universal Inference Meets Random Projections: A Scalable Test for Log-Concavity. *arXiv preprint*, 2021. URL <https://arxiv.org/abs/2111.09254>.  
R package: [LogConcaveUniv](#).
  - [3] Robin Dunn, Aaditya Ramdas, Sivaraman Balakrishnan, and Larry Wasserman. Gaussian Universal Likelihood Ratio Testing. *arXiv preprint*, 2021. URL <https://arxiv.org/abs/2104.14676>. Under revision, post-review at *Biometrika*.
  - [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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## 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

ECML PKDD PharML workshop (2022), ICML climate change workshop (2021),

NeurIPS climate change workshop (2019, 2020, 2021), *Journal of Machine Learning Research* (2019)

### PhD student mentor

2018, 2020

### Conference volunteer

2018 – 2020

Women in Data Science (WiDS) Pittsburgh @ CMU conference volunteer

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## **Professional Memberships**

- American Statistical Association
- ENAR International Biometric Society
- Institute of Mathematical Statistics