

CONTACT INFORMATION

Health Sciences Building F-600
 Department of Biostatistics
 University of Washington
 Seattle, Washington 98195

Phone: (206) 310-4888
Email: brianw26[at]uw[dot]edu
Web: www.students.washington.edu/brianw26

RESEARCH INTERESTS

Inference in high-dimensional models using targeted maximum likelihood estimation; data visualization; statistical methods for high-dimensional data; statistical methods for neurological research; statistical methods for genetic research; statistical methods for cancer research; statistical methods for HIV/AIDS research; developing statistical packages

EDUCATION

University of Washington, Seattle, Washington

Ph.D., Biostatistics

2014–2019 (expected)

M.S., Biostatistics

2017

Advisors: Marco Carone, Ph.D. and Noah Simon, Ph.D.

Pomona College, Claremont, California

B.A., Mathematics

2010–2014

Thesis: Shrinkage Estimators for High-Dimensional Covariance Matrices

Advisor: Johanna Hardin, Ph.D.

HONORS AND AWARDS

University of Washington Department of Biostatistics:

- WNAR Most Outstanding Oral Paper Award June 2017
- Biostatistics Department Conference Travel Award Spring 2017
- Graduate School Fund for Excellence and Innovation Travel Award Spring 2017
- Graduate and Professional Student Senate Travel Grant Spring 2017
- Top Scholar Incoming Student Award September 2014

Pomona College:

- Distinction in the Senior Exercise May 2014
- Inducted into Sigma Xi Scientific Research Honor Society May 2014
- Pomona-Pitzer Varsity Swimming and Diving Captain 2013–2014
- All SCIAC Conference Academic Team 2013 and 2014
- All SCIAC Conference Swimmer 2013
- UCLA DataFest Best Insight Award June 2013

RESEARCH EXPERIENCE

Fred Hutchinson Cancer Research Center, Seattle, Washington

Statistical Center for HIV/AIDS Research & Prevention (SCHARP)

Graduate Research Assistant

Summer 2015 – Present

Advisor: James Hughes, Ph.D.

Stanford University School of Medicine, Stanford, California

Integrative Cancer Biology Program Research Fellow

Summer 2013

Advisors: Benedict Anchang, Ph.D. and Sylvia Plevritis, Ph.D.

TEACHING EXPERIENCE

University of Washington, Seattle, Washington

Teaching Assistant

Summer Institute in Statistics for Big Data

Module 3, Reproducible Research for Biomedical Big Data

July 2017

Instructors: Keith Baggerly, Ph.D. and Karl Broman, Ph.D.

Teaching Assistant

Summer Institute for Statistics for Big Data

Module 2, Visualization of Biomedical Big Data

July 2016, July 2017

Instructors: Dianne Cook, Ph.D. and Heike Hofmann, Ph.D.

Graduate Teaching Assistant

BIOST 311 — Regression Methods in the Health Sciences

Spring 2017

Instructor: Anna Plantinga

Graduate Teaching Assistant

BIOST 571 — Advanced Regression Methods for Dependent Data

Winter 2017

Instructor: Adam Szpiro, Ph.D.

Co-instructor

Inaugural School of Public Health Math and R skills preparatory workshop

Fall 2016

Advisor: Annette Fitzpatrick, Ph.D.

Co-instructor

First Year Statistical Theory Exam Review Sessions

Spring 2016

Advisor: Scott Emerson, M.D. Ph.D.

Teaching Assistant

Summer Institute for Statistics for Big Data

Module 1, Accessing Biomedical Big Data

July 2015

Instructors: Jeff Leek, Ph.D. and Raphael Gottardo, Ph.D.

Graduate Teaching Assistant

R package development for introductory biostatistics courses

Summer 2014 – Summer 2015

Advisor: Scott Emerson, M.D. Ph.D.

Pomona College, Claremont, California

Mentor/Teaching Assistant

MATH 58b — Introduction to Biostatistics

Spring 2014

MATH 58 — Introduction to Statistics

Fall 2013

Instructor: Johanna Hardin, Ph.D.

Grader

MATH 58b — Introduction to Biostatistics

Spring 2013

Instructor: Johanna Hardin, Ph.D.

MATH 31H — Honors Calculus II

Fall 2012

Instructor: Shahriar Shahriari, Ph.D.

PUBLICATIONS

4. Hanscom B, Donnell D, **Williamson B**, and Hughes JP. Adaptive non-inferiority margins under observable non-constancy. *University of Washington Department of Biostatistics Working Paper Series*, (417), 2017
3. Anchang B, Davis KL, Fienberg H, **Williamson B**, Bendall SC, Karacosta L, Tibshirani R, Nolan GP, and Plevritis SK. DRUG-NEM: optimizing drug combinations using single-cell perturbation response to account for intratumoral heterogeneity. *submitted to Proceedings of the National Academy of Sciences*, 2017
2. Safren SA, Hughes JP, Mimiaga MJ, Moore AT, Friedman RK, Srithanaviboonchai K, Limbada

M, **Williamson BD**, Elharrar V, Cummings V, Magidson JF, Gaydos CA, Celentano D, and Mayer KH for the HPTN063 Study Team. Frequency and predictors of estimated HIV transmissions and bacterial STI acquisition among HIV-positive patients in HIV care across three continents. *Journal of the International AIDS Society*, 19, 2016

1. Ritchwood TD, Hughes JP, Jennings L, MacPhail C, **Williamson B**, Selin A, Kahn K, Gómez-Olivé XF, and Pettifor A. Characteristics of age-discordant partnerships associated with HIV risk among young South African women (HPTN 068). *Journal of Acquired Immune Deficiency Syndromes*, 72:423–429, 2016

PRESENTATIONS

7. **Williamson B**, Gilbert P, Simon N, and Carone M. Assessing Variable Importance Non-parametrically using Machine Learning Techniques. Joint Statistical Meetings. June 2017, Baltimore, MD.
6. **Williamson B**, Gilbert P, Simon N, and Carone M. Assessing Variable Importance Nonparametrically using Machine Learning Techniques. WNAR Student Paper Competition. June 2017, Santa Fe, NM.
5. **Williamson B**, Carone M, and Simon N. Assessing Variable Importance Nonparametrically using Machine Learning Techniques. University of Washington Statistical Learning Applied to Biostatistics (SLAB) Lab meeting. May 2017, Seattle, WA.
4. **Williamson B**. An Introduction to Targeted Learning. University of Washington Department of Biostatistics Student Seminar. February 2017, Seattle, WA.
3. **Williamson B**, Carone M, and Simon N. Assessing Variable Importance Nonparametrically. University of Washington Department of Biostatistics Student Seminar. March 2016, Seattle, WA.
2. **Williamson B**. Shrinkage Estimators for High-Dimensional Covariance Matrices. Pomona College Mathematics Seminar. April 2014, Claremont, CA.
1. **Williamson B** and Anchang B. Automating Cell Gating and Creating a Nested Effects Model to Compare Drug Effects. Stanford University Center for Cancer Systems Biology Meeting. August 2013, Stanford, CA.

MIXED MEDIA PRESENTATIONS

1. **Williamson B**, Carone M, and Simon N. Assessing Variable Importance Nonparametrically using Machine Learning Techniques. Sigma Xi Student Research Showcase. April 2017, <https://briandwilliamson.tumblr.com/>

POSTER PRESENTATIONS

1. **Williamson B**, Carone M, and Simon N. Assessing Variable Importance Nonparametrically. University of Washington Biostatistics Department Retreat. September 2015, Blaine, WA.

PROFESSIONAL SOCIETIES

Western North American Region of the International Biometric Society (WNAR)
Student Member Fall 2014 – Present

American Statistical Association
Student Member Fall 2013 – Present

Bernoulli Society
Student Member Spring 2016 – Present

UNIVERSITY SERVICE

University of Washington Department of Biostatistics
Student Member
 Educational Policy and Teaching Evaluation Committee (EPTEC) Autumn 2015 – Present

Peer Mentor
 Peer mentoring program Fall 2016 – Present

| | |
|---|---------------------------|
| <i>Co-organizer</i> Statistical Learning Applied to Biostatistics (SLAB) Lab | Fall 2016 – Present |
| <i>Student Member</i> Diversity Committee | Fall 2016 – Present |
| <i>Student Member</i> Website Committee | Spring 2015 – Summer 2015 |

PROFESSIONALLY-RELATED SERVICE

- *Session Chair*, “Quantification, Association Testing, and Integration of the Microbiome”, Invited Session, JSM 2017
- *Alumni Mentor*, SagePost 47 Summer 2015 – Present
- *Statistical Consultant*, Sierra Streams Institute, Nevada City, California Spring 2016

SOFTWARE

uwIntroStats package – R software for introductory biostatistics students, developed with Scott Emerson M.D. Ph.D., Andrew Spieker Ph.D., Travis Hee Wai, and Solomon Lim (Available on CRAN at <https://cran.r-project.org/web/packages/uwIntroStats/>)

vimp and **vimpv** packages – R and Python software implementing variable importance methods (Available on GitHub at <https://github.com/bdwilliamson/vimp> and <https://github.com/bdwilliamson/vimpv>)

TECHNICAL SKILLS

Statistical packages: Advanced knowledge of R, basic knowledge of SAS and Stata
 Languages: Proficient in Python, basic knowledge of Java, C++, SML
 Applications: Advanced knowledge of L^AT_EX, common Windows software
 Operating Systems: Advanced knowledge of Unix/Linux, Windows

PROFESSIONAL EXPERIENCE

- Global Market Insite, Inc. (GMI)**, Bellevue, Washington Summer 2012
Intern
- Analyzed the survival of a cohort of recruits to GMI’s panel of consumer market research survey respondents and built a function to model survivorship of survey respondents
 - Built a life table to model the survivorship of survey respondents
 - Built a model which predicts revenue gained from interventions at certain steps in a panelist’s life cycle