

# Daniela M. Witten

[www.danielawitten.com](http://www.danielawitten.com)

*Abbreviated curriculum vitae. Full vitae available upon request.*

## Education

*Ph.D. in Statistics*, 2010

Advisor: Robert Tibshirani

Stanford University

*M.S. in Statistics*, 2006

Stanford University

*B.S. in Mathematics & Biological Sciences* (double-major), 2005

With Honors (Highest) and Distinction (Highest)

Stanford University

## Academic Positions

*Interim Chair*, Department of Statistics, Univ. Washington Summer 2020

*Associate Chair*, Department of Statistics, Univ. Washington Spring 2020, 2020-2021

*Dorothy Gilford Endowed Chair*, Univ. Washington 2018-present

*Professor*, Departments of Statistics and Biostatistics, Univ. Washington 2018-present

*Associate Prof.*, Departments of Statistics and Biostatistics, Univ. Washington 2014-2018

*Assistant Professor*, Department of Biostatistics, Univ. Washington 2010-2014

– Genentech Endowed Professor of Biostatistics

## Major Awards

### *Major Awards as Faculty*

– Genentech Endowed Professorship in Biostatistics, Univ. Washington 2010-2011

– David P. Byar Young Investigator Award, American Statistical Association 2011

– NIH Director's Early Independence Award, National Institutes of Health 2011-2016

– Sloan Research Fellowship, Alfred P. Sloan Foundation 2013-2015

– Ziegel Prize, Technometrics 2014

– Raymond Carroll Young Investigator Award 2015

– CAREER Award, National Science Foundation 2013-2018

– Simons Investigator, Simons Foundation 2018-2023

– Dorothy Gilford Endowed Chair, Univ. Washington 2018-present

– Elected Member, International Statistical Institute 2019

– Mortimer Spiegelman Award, American Public Health Association 2019

– *For "outstanding contributions to statistical methodology and its applications"*

– Medallion Lecturer, Institute for Mathematical Statistics 2020

– *For "a significant contribution to one or more areas of research"*

– Fellow, American Statistical Association 2020

– *For "pioneering work in statistical learning; for developing new and impactful statistical methods for analysis of data from diverse fields; for innovation in teaching and communicating statistical machine learning to a broad non-technical audience"*

- Breiman Junior Award, American Statistical Association 2021
  - For "outstanding theoretical or methodological contributions to machine learning and/or computational statistics"

*Major Awards as a Student*

- National Merit Scholar 2001
- Presidential Scholar, Stanford University 2001-2005
- National Advanced Placement Scholar 2001
- Election to Cap and Gown Honor Society, Stanford University 2004
- Distinction (Highest), Stanford University 2005
- Departmental Honors (Highest), Stanford University 2005
- Firestone Medal for Excellence in Research, Stanford University 2005
- National Defense Science and Engineering Graduate Fellowship 2006-2009
- Gertrude Cox Scholarship, American Statistical Association 2008
- WNAR Student Paper Award 2009

*Awards from the Popular Media*

- Forbes Magazine, featured in "30 under 30" 2012
- Elle Magazine, "Genius Award" 2012
- Forbes Magazine, featured in "30 under 30" 2013
- PopTech Science Fellow 2013
- Forbes Magazine, featured in "30 under 30" 2014

*[Complete press coverage and web links are available at [www.danielawitten.com](http://www.danielawitten.com)]*

**Distinguished and Plenary Lectures (selected from > 150 invited lectures)**

- TEDx, University of Washington 2012
- Keynote at Statistics in Applications Symposium, Michigan State University 2014
- Raymond Carroll Young Investigator Award Lecture, Texas A&M University 2016
- Keynote at Big Data in Biomedicine Conference, Stanford University 2016
- Keynote at UseR! Conference, Stanford University 2016
- Keynote at "Methods and Applications in Health Care Analytics", Seattle WA 2016
- High-Risk High-Reward Symposium, National Institutes of Health 2016
- "Refining the Concept of Scientific Inference," National Academy of Sciences 2016
- Women in Data Science Conference, Stanford University 2018
  - 100,000 people watched the livestream
- Introductory Overview Lecture, Joint Statistical Meetings 2018
- Math Across Campus Talk, University of Washington 2019
- Keynote at ASA Symposium on Data Science and Statistics, Bellevue WA 2019
- Constance van Eeden Fund Seminar Speaker, University of British Columbia 2020

IMS Medallion Lecture, Seoul Korea	2020
– For “a significant contribution to one or more areas of research”	
– Postponed due to COVID-19	
Keynote at R/Biomedicine Conference	2020
Breiman Award Lecture, Joint Statistical Meetings	2021
– For “outstanding theoretical or methodological contributions to machine learning and/or computational statistics”	

## Editorial Service

Associate Editor, <i>Journal of Computational and Graphical Statistics</i>	2011-2015
Associate Editor, <i>Biometrika</i>	2012-present
Associate Editor, <i>J. American Statistical Assoc.: Theory &amp; Methods</i>	2014-2017
Interim Editor, <i>Journal of Computational and Graphical Statistics</i>	Summer 2015
Action Editor, <i>Journal of Machine Learning Research</i>	2018-present

## 15 Selected Publications (from > 75; full list available on Google Scholar)

- Witten DM, Tibshirani R, and T Hastie (2009) A penalized matrix decomposition, with applications to canonical correlation analysis and principal components. *Biostatistics* 10(3): 515-534.
- Witten DM and R Tibshirani (2010) A framework for feature selection in clustering. *Journal of the American Statistical Association* 105(490): 713-726.
- Witten DM and R Tibshirani (2011) Penalized classification using Fisher’s linear discriminant. *Journal of the Royal Statistical Society, Series B* 73(5): 753-772.
- Winner of ASA David Byar Young Investigator Award
- Witten DM, Friedman JH, and N Simon (2011) New insights and faster computations for the graphical lasso. *Journal of Computational and Graphical Statistics* 20(4): 892-900.
- Danaher P, Wang P, and D Witten (2014) The joint graphical lasso for inverse covariance estimation across multiple classes. *Journal of the Royal Statistical Society, Series B* 76(2): 373-397.
- Voorman A, Shojaie A, and D Witten (2014) Graph estimation with joint additive models. *Biometrika* 101(1): 85-101.
- ASA David Byar Travel Award to A. Voorman
- Kircher M\*, Witten DM\*, Jain P, O’Roak BJ, Cooper GM, and J Shendure (2014) A general framework for estimating the relative pathogenicity of human genetic variants. *Nature Genetics* 46: 310-315.
- Tan K-M, London P, Mohan K, Lee S-I, Fazel M, and D Witten (2014) Learning graphical models with hubs. *Journal of Machine Learning Research* 15: 3297-3331.
- Chen S, Witten D, and A Shojaie (2015) Selection and estimation in mixed graphical models. *Biometrika* 102(1): 47-64.
- Petersen A, Witten D, and N Simon (2016) Fused lasso additive model. *Journal of Computational and Graphical Statistics* 25(4): 1005-1025.

- A. Petersen was runner-up in 2014 WNAR Student Paper Competition
- A. Petersen was winner of 2015 JSM Non-Parametrics Student Paper Competition
- Included in "JCGS best paper showcase" session at the 2018 SDSS conference

Tan KM, Ning Y, Witten D, and H Liu (2016) Replicates in high dimensions, with applications to latent variable graphical models. *Biometrika* 103(4): 761-777.

Chen S, Shojaie A, and D Witten (2017) Network reconstruction from high-dimensional ordinary differential equations. *Journal of the American Statistical Association* 112(520): 1697-1707.

Jewell S and D Witten (2018) Exact spike train inference via  $\ell_0$  optimization. *Annals of Applied Statistics* 12(4): 2457-2482.

Jewell S, Hocking T, Fearnhead P, and D Witten (2019) Fast non-convex deconvolution of calcium imaging data. To appear in *Biostatistics*.

Gao L, Bien J, and D Witten (2019) Are clusterings of multiple data views independent? To appear in *Biostatistics*.

- ASA David Byar Travel Award to L. Gao

## National Academy of Medicine Report

Micheel C, Nass SJ, and GS Omenn, Editors; Committee on the Review of Omics-Based Tests for Predicting Patient Outcomes in Clinical Trials; Board on Health Care Services; Board on Health Sciences Policy; Institute of Medicine (2012) *Evolution of Translational Omics: Lessons Learned and the Path Forward*. National Academy of Sciences Press. 300 pages.

- Consensus report from National Academy of Medicine committee, 2010-2012

## Textbook

James G, Witten DM, Hastie T, and R Tibshirani (2013) *Introduction to Statistical Learning*. Springer Series in Statistics. 426 pages.

- Winner of 2014 Ziegel Award from *Technometrics*

## External Research Funding as Principal Investigator

NIH Director's Early Independence Award	2011-2016
Sloan Research Fellowship	2013-2015
NSF CAREER Award	2013-2018
NIH R25 Award	2014-2017
NIH T32 Award	2015-2020
NIH R01 Award from NIGMS	2017-2021
Simons Foundation Investigator Award	2018-2023
NIH R01 Award from NIDA (BRAIN/CRCNS)	2018-2022
NIH R01 Award from NIBIB (BRAIN)	2018-2021

## PhD Students & Post-Doctoral Researchers Supervised

*Graduated PhD Students*

- Arend Voorman (co-chair with Ali Shojaie) PhD in 2014
  - First position after graduation: Statistician at Gates Foundation
- Kean Ming Tan PhD in 2015
  - As of Summer 2019: Assistant Professor at Univ of Michigan, Dept of Statistics
- Shizhe Chen (co-chair with Ali Shojaie) PhD in 2016
  - As of Summer 2018: Assistant Professor at UC Davis, Department of Statistics
- Ashley Petersen (co-chair with Noah Simon) PhD in 2016
  - As of Summer 2017: Assistant Prof at Univ of Minnesota, Div of Biostatistics
- Lucy Gao PhD in 2020
  - As of Summer 2020: Assistant Prof at Univ of Waterloo, Department of Statistics and Actuarial Science
- Sean Jewell PhD in 2020
  - As of Summer 2020: Research Scientist at Apple Health AI

*Ongoing PhD Students*

- Bryan Martin, Statistics PhD student (co-chair with Amy Willis) 2015-present
- Yandi Shen, Statistics PhD student (co-chair with Fang Han) 2016-present
- Yiqun Chen, Biostatistics PhD student 2017-present
- Anna Neufeld, Statistics PhD student 2018-present

*Post-Doctoral Researchers*

- Hugo (Guo) Yu 2018-2020
  - As of Summer 2020: Assistant Prof at UC Santa Barbara, Department of Statistics and Applied Probability
- Iain Carmichael 2019-present

August 4, 2020