

August 2022

Johanna S. Hardin

Professor

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EDUCATION

Ph.D. Statistics, University of California, Davis 2000
Dissertation: **Multivariate Outlier Detection and Robust Clustering with Minimum Covariance Determinant Estimation and S-Estimation.**
Adviser: Dr. David M. Rocke.
M.S. Statistics, University of California, Davis 1997
B.A. Mathematics, Pomona College, Claremont, California 1995
Adviser: Dr. Donald Bentley.

EMPLOYMENT

Professor of Mathematics, Pomona College 2015 - present
Chair, Department of Mathematics, Pomona College 2013 - 2016
Associate Professor of Mathematics, Pomona College 2008 - 2015
Assistant Professor of Mathematics, Pomona College 2002 - 2008
Staff Scientist, Fred Hutchinson Cancer Research Center 2000 - 2002
Lecturer, Seattle University, Albers School of Business and Economics 2001 - 2002
Associate Instructor, UC Davis, Division of Statistics 1997 - 1999

HONORS AND AWARDS

Not So Standard Deviations Fellow 2020
Elected Member of the International Statistics Institute 2018
Mu Sigma Rho, William D. Warde Statistics Education Award 2018
Wig Distinguished Professor award 2016
Fellow of the American Statistical Association 2015
Mathematical Association of America, Hogg Award for Excellence in Teaching Introductory Statistics 2014
American Statistical Association, Waller Education Award 2007
Appointed to CGU's Extended Graduate Faculty 2003
Project NExT Fellow 2002-2003
Graduate Student Association Travel Award, UC Davis 2000
Student Paper Competition Runner-Up, Joint Meeting of WNAR, IBS, & IMS 1999
Julius Blum Award, Division of Statistics, UC Davis 1995-1996
Phi Beta Kappa, Pomona College 1995
Sigma Xi, Pomona College 1995
Graduated Cum Laude, (B.A.), Pomona College 1995
Graduated with Honors, Mathematics Department, Pomona College 1995

FELLOWSHIPS AND GRANTS

NIH National Institute of General Medical Sciences	2021-2024
Title: "A Training Module for Reproducible Data Science Research"	
PI: Roger Peng	\$94,168
Role: External advisory committee	
NSF HDR DSC: Collaborative Research, external advisory committee	2019-2022
Title: "The Data Science WAV: Experiential Learning with Local Community Organizations"	
PI: Benjamin Baumer	\$581,902
Role: External advisory committee	
NSF Improving Undergraduate STEM Education (IUSE) Grant	2017-2020
Title: "Creating Opportunities for Data Proficiency in Undergraduate Students"	
PI: Anna Bargagliotti	\$265,853
Role: Advisory panelist	
NIH Mouse Models of Human Cancers Consortium Grant	2015-2019
Title: "Leveraging Genetically-Engineered Mice to Optimize Pediatric Glioma"	
PI: David Gutmann & Ami Radunskaya	\$160,916.93
Role: Co-principal Investigator	
CHAS Faculty Grant Proposal for Promoting Excellence	2014-2015
Consortium on High Achievement and Success	
Title: "Advising Traditionally Underrepresented Students for Retention in Mathematics"	
Principal Investigator	\$6,400
HHMI 5C Summer Collaborative Grant	Summer 2013
Title: "The role of RpoS level in regulating genome-wide patterns of transcription"	
Role: Principal Investigator	\$13,000
Mellon Foundation Workshop Grant	January 2011
Title: "Strengthening Bridges between Statistics and the Natural Sciences"	
Role: Principal Investigator	\$19,100
National Science Foundation Research Experience for Undergraduates	summers 2009, 2010, 2011
Title: "Claremont Colleges Mathematics REU Site"	
PI: Christopher Towse	\$275,000
Role: Co-principal Investigator	
Mellon Foundation Workshop Grant	summer 2008
Title: "Student/Faculty Research Models in Computational Biology"	
Role: Senior Personnel	\$16,762
HHMI Interdisciplinary Research Grant	summer 2007
Title: "Statistical Estimation of Physiological Performance"	

PI: Stephen Adolph	\$10,500
Role: Co-principal Investigator	
 Mellon Foundation Workshop Grant	summer 2007
Title: "The Future of Statistics Consultation, Training, and Curriculum across the Liberal Arts College"	
Role: Co-principal Investigator	\$14,000
 Mellon Foundation Faculty Career Enhancement Grant	summer 2006
Title: "Clustering Microarray Data"	
Role: Principal Investigator	\$4,500
 National Science Foundation Research Experience for Undergraduates	summers 2005, 2006, 2007
Title: "Claremont Colleges Mathematics REU Site"	
PI: Jim Hoste	\$195,977
Role: Senior Personnel	
 Center for Quantitative Life Sciences	summer 2005
Title: "Statistical Estimation of Physiological Performance"	
PI: Stephen Adolph	\$17,904
Role: Co-principal Investigator	
 Howard Hughes Medical Institute	2004-2008
Title: "2004 Undergraduate Science Education Award"	
Role: Senior Investigator on institutional grant	\$1.3 million
 National Institutes of Health Conference Grant 1 R13 CA110472-01	2004 & 2005
Title: "Seventh and Eighth Meetings of New Researchers"	
Role: Principal Investigator	\$22,000
 National Institutes of Health	2003-2005
Academic Research Enhancement Award Grant #1 R15 AG021907-01A1	
Title: "Microarray Analysis of Yeast Aging"	
PI: Laura Hoopes	\$100,000
Role: Co-principal Investigator	
 National Science Foundation Major Research Instrumentation Grant #0318944	2003-2006
Title: "Genomic and Genetic Analysis for Pomona College"	
PI: Laura Hoopes	\$233,000
Role: Senior Investigator	

University of California, Davis Fellowship

1995 - 1997

Title: "Eugene Cota-Robles Fellowship"

Role: Recipient

Fees, tuition, and a \$2,000 monthly stipend for two years

PUBLICATIONS AND PAPERS

• Peer-reviewed articles

36. Ashby, E.[†], Paddock, L.[†], Rollosso, L.[†], Tang, E.[†], Miller, G.[†], Wade, S.[†], Betts, H.[†], Porter, A.[†], Saada, C.[†], Hardin, J., Schulz, D. **Genomic occupancy of the bromodomain protein Bdf3 is dynamic during differentiation of African trypanosomes from bloodstream to procyclic forms**, submitted, 2022. <https://www.biorxiv.org/content/10.1101/2022.01.11.475927v1>
35. Hardin, J., Shahriari, S. **Community, Collaboration, and Climate**, *PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies*, in press, 2022. <https://arxiv.org/abs/2201.02845>
34. Çetinkaya-Rundel, M., Hardin, J., Baumer, B., McNamara, A., Horton, N., Rundel, C. **An Educator's Perspective on the Tidyverse**, *Technology Innovations in Statistics Education*, 2022. <https://doi.org/10.5070/T514154352>
33. Lu, B.[†], Hardin, J. **A Unified Framework for Random Forest Prediction Error Estimation**, *Journal of Machine Learning Research*, 2021. <https://www.jmlr.org/papers/v22/>
32. Kim, A.Y., Hardin, J. **"Playing the whole game": A data collection and analysis exercise with Google Calendar**, *Journal of Statistics Education*, 2021. <https://doi.org/10.1080/10691898.2020.1799728>
31. Hardin, J., Haushalter, K., Yong, D. **Turning STEM Education Inside-Out: Teaching and Learning Inside of Prisons**, *Science Education and Civic Engagement: An International Journal* 12 (2); 2020. <https://new.seceij.net/articletype/projectreport/turning-stem-education-inside-out/>
30. Allison, K.[†], Hallman, M.[†], Koskelo, E.[†], Radunskaya, A., Hardin, J., Hudgings, J. **Increasing the speed of CCD-based thermorefectance imaging**, *Review of Scientific Instruments* 91: 044901, 2020. <https://doi.org/10.1063/1.5135922>
29. Baumer, B., Bray, A., Çetinkaya-Rundel, M., and Hardin, J. **Teaching Introductory Statistics with DataCamp**, *Journal of Statistics Education*, 28(1): 89-97, 2020. <https://www.tandfonline.com/doi/full/10.1080/10691898.2020.1730734>

[†]Work done as an undergraduate student.

[‡]Co-corresponding authors.

28. Fiksel, J., Jager, L., Hardin, J., Taub, M. **Using GitHub Classroom To Teach Statistics**, *Journal of Statistics Education*, 27(2): 110-119, 2019.
27. Duron, C., Pan, Y., Gutmann, D., Hardin, J., Radunskaya, A. **Variability of Betweenness Centrality and Its Effect on Identifying Essential Genes**, *Bulletin of Mathematical Biology*, 81: 3655-3673, 2019.
26. Evans, C.[†], Hardin, J., Stoebel, D. **Selecting between-sample RNA-Seq normalization methods from the perspective of their assumptions**. *Briefings in Bioinformatics*, 19(5): 776-792, 2018. <https://arxiv.org/abs/1609.00959>
 - Tutorial on RNASeq Normalization and Differential Expression (Computational Genomics Summer Institute @ IPAM, 2016): <http://computationalgenomics.bioinformatics.ucla.edu/portfolio-item/jo-hardin-tutorial/>
 - Assumptions in Normalizing RNASeq Data (Computational Genomics Summer Institute @ IPAM, 2016): <http://computationalgenomics.bioinformatics.ucla.edu/portfolio-item/jo-hardin-assumptions-in-normalizing-rnaseq-data/>
25. Hardin, J. **Fun, Not Competition: The Story of My Math Club**, *Journal of Humanistic Mathematics*, 8(1): 350-358, 2018.
<http://scholarship.claremont.edu/jhm/vol8/iss1/17/>
24. Pan, Y., Duron, C., Bush, E., Sims, P., Hardin, J.[‡], Radunskaya, A.[‡], and Gutmann, D.[‡] **Graph Complexity Analysis Identifies an ETV5 Tumor-Specific Network in Human and Murine Low-Grade Glioma**, *PLoS ONE*, 13(5): e0190001, 2018.
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0190001>
23. Hardin, J. **Dynamic Data in the Statistics Classroom**, *Technology Innovations in Statistics Education*, 11(1), 2018. <https://escholarship.org/uc/item/13g5g3dm>
 - Dynamic Data in the Classroom (eCOTS 2016): <https://www.causeweb.org/cause/ecots/ecots16/posters/a/7>
 - Dynamic Data (useR 2016): <https://channel9.msdn.com/events/useR-international-R-User-conference2016/Dynamic-Data-in-the-Statistics-Classroom>
22. Wong, G.[†], Bonocora, R., Schep, A.[†], Beeler, S.[†], Lee, A., Shull, L.[†], Batachari, L.[†], Dillon, M.[†], Evans, C.[†], Becker, C.[†], Bush, E., Hardin, J., Wade, J., and Stoebel, D. **The genome-wide transcriptional response to varying RpoS levels in *Escherichia coli* K-12**, *Journal of Bacteriology*, 199:e00755-16, 2017.
<http://biorxiv.org/content/early/2016/10/21/082537>
21. Coleman, J.[†], Replogle, J.[†], Chandler, G., and Hardin, J. **Resistant Multiple Sparse Canonical Correlation**. *Statistical Applications in Genetics and Molecular Biology*, 15: 123-138; 2016. <http://arxiv.org/abs/1410.3355>
20. Hardin, J., Hoerl, R., Horton, N.J., and Nolan, D. **Data Science in Statistics Curricula: Preparing Students to ‘Think with Data’**. *The American Statistician* 69: 4, 2015.
<http://arxiv.org/abs/1410.3127>

19. Hardin, J., Sarkis, G., and URC, P.C.[†] **Network Analysis with the Enron Email Corpus.** *Journal of Statistics Education*, 23:2, 2015. <http://arxiv.org/abs/1410.2759> (P.C. URC stands for the Pomona College Undergraduate Research Circle whose members for this project were Timothy Kaye, David Khatami, Daniel Metz, and Emily Proulx.)
<https://amstat.tandfonline.com/doi/abs/10.1080/10691898.2015.11889734>
18. Hardin, J., Garcia, S.R., and Golan, D. **A method for generating realistic correlation matrices.** *Annals of Applied Statistics*, 7: 1733-1762, 2013.
<http://arxiv.org/abs/1410.3370>
17. Brieger, K.[†], and Hardin, J. **Medicine and Statistics: the inextricable link**, *Chance*, 25: 31-34; 2012.
16. Head, A.[†], Hardin, J., Adolph, S.; **Methods for estimating peak physiological performance and correlating performance measures**, *Environmental and Ecological Statistics*, 19: 127-137; 2012.
15. Karnovsky, N.J., Brown, Z.W.[†], Welcker, J., Harding, A.M.A., Walkusz, W., Cavalcanti, A., Hardin, J., Kitaysky, A., Gabrielsen, G., Grémillet, D. **Inter-colony comparison of diving behavior of an Arctic top predator: implications for warming in the Greenland Sea**, *Marine Ecology Progress Series*, 440: 229-240; 2011. (DOI: 10.3354/meps09351)
14. Grosfils, E.B., Long, S.M.[†], Venechuk, E.M.[†], Hurwitz, D.M.[†], Richards, J.W.[†], Kastl, B.[†], Drury, D.E.[†], and Hardin, J., **Geologic map of the Ganiki Planitia quadrangle (V-14), Venus: U.S. Geological Survey Scientific Investigations Map 3121**, 2011.
<http://astrogeology.usgs.gov/Projects/PlanetaryMapping/MapStatus/VenusStatus/V14.html>
13. Richards, J.[†], Hardin, J., Grosfils, E.; **Weighted Model-Based Clustering for Remote Sensing Image Analysis**, *Computational Geosciences*, 14: 125-136; 2010. (DOI: 10.1007/s10596-009-9136-z)
12. Hardin, J., Wilson, J.; **A note on oligonucleotide expression values not being normally distributed**, *Biostatistics*, 10: 446-450; 2009.
11. Yiu, G.[†], McCord, A.[†], Wise, A.[†], Jindal, R.[†], Hardee, J.[†], Kuo, A.[†], Yuen Shimogawa, M.[†], Cahoon, L., Wu, M., Kloke, J., Hardin, J., Mays Hoopes, L.L.; **Pathways Change in Expression During Replicative Aging in *Saccharomyces cerevisiae***, *Journal of Gerontology*, 63A: 21-34; 2008.
10. Hardin, J., Mitani, A.[†], Hicks, L.[†], VanKoten, B.[†]; **A Robust Measure of Correlation between Two Genes on a Microarray**, *BMC Bioinformatics*, 8:220; 2007.
9. Adolph, S., Hardin, J.; **Estimating Phenotypic Correlations: Correcting for Bias Due to Intraindividual Variability**, *Functional Ecology*, 21:178-184; 2007.
8. Wise, A.[†], Hardin, J., Hoopes, L.; **Yeast Through the Ages: a statistical analysis of genetic changes in aging yeast**, *Chance*, 19: 39-44; 2006.

7. Hardin, J., Hoopes, L., Murphy, R.[†]; **Analyzing DNA Microarrays with Undergraduate Statisticians**, *Proceedings of the Seventh International Conference on Teaching Statistics*, 2006. <http://www.stat.auckland.ac.nz/~iase/publications.php?show=17>
course modules available at:
<http://pages.pomona.edu/~jsh04747/courses/microarray/modules.htm>
6. Hardin, J., Rocke, D.; **The Distribution of Robust Distances**; *Journal of Computational and Graphical Statistics*, **14**: 928-946; 2005.
5. Hardin, J., Waddell, M., Page, D., Zhan, F., Barlogie, B., Crowley, J., Shaughnessy, J.; **Evaluation of Multiple Models to Distinguish Closely Related Forms of Disease Using DNA Microarray Data: an Application to Multiple Myeloma**, *Statistical Applications in Genetics and Molecular Biology*, **3**: article 10; 2004.
4. Hardin, J., Rocke, D.; **Outlier Detection in the Multiple Cluster Setting Using the Minimum Covariance Determinant Estimator**, *Computational Statistics and Data Analysis*, **44**: 625-638; 2004.
3. Durbin, B., Hardin, J., Hawkins, D., Rocke, D.; **A Variance-Stabilizing Transformation for Gene-Expression Microarray Data**; *Bioinformatics*, **18**: S105-S110; 2002.
2. Zhan, F., Hardin, J., Kordsmeier, B., Bumm, K., Zheng, M., Tian, E., Sanderson, R., Yang, Y., Wilson, C., Zangari, M., Anaissie, E., Morris, C., Muwalla, F., van Rhee, F., Fassas, A., Crowley, J., Tricot, G., Barlogie, B., Shaughnessy, J.; **Global Gene Expression Profiling of Multiple Myeloma, Monoclonal Gammopathy of Undetermined Significance, and Normal Bone Marrow Plasma Cells**; *Blood*, **99**: 1745-1757; 2002.
1. Coleman, D., Dong, X., Hardin, J., Rocke, D.M., Woodruff, D.L.; **Some Computational Issues in Cluster Analysis with no á priori Metric**; *Computational Statistics and Data Analysis*, **31**: 1-11; 1999.

- **Textbooks**

1. Çetinkaya-Rundel, M., Hardin, J. **OpenIntro: Introduction to Modern Statistics**, 2021. <https://openintro-ims.netlify.app/>

- **Chapters in an edited book**

4. Hardin, J. **9 out of 10 Seniors Recommend this First-Year Seminar: Statistics in the Real World**, In *Mathematical Themes in a First-Year Seminar*, eds. J. Schaefer, J. Bowen, M. Kozek, and P. Pierce, MAA Notes Series; 2021. <https://www.maa.org/press/ebooks/mathematical-themes-in-a-first-year-seminar>
3. Hardin, J., Kloke, J.; **Statistical Analyses**, In *Current Protocols in Essential Laboratory Techniques*, eds. S. Gallagher and E. Wiley, John Wiley & Sons, Inc.: New York; 2017.
2. Kloke, J., Hardin, J.; **Statistical Analyses**, In *Current Protocols in Essential Laboratory Techniques*, eds. S. Gallagher and E. Wiley, John Wiley & Sons, Inc.: New York; 2008.
1. Pauler, D., Hardin, J., Faulkner, J., Leblanc, M., Crowley, J.; **Survival Analysis with Gene Expression Arrays**. In *Handbook of Statistics 23: Advances in Survival Analysis*, eds. N. Balakrishnan and C.R. Rao, Elsevier Science: Amsterdam; 2004.

- **Pre-prints**

1. Cruz, M.[†], Wei, A.[†], Hardin, J., and Radunskaya, A. **Long Term Averages of the Stochastic Logistic Map**. Submitted, 2022. <https://arxiv.org/abs/2206.03849>

- **R packages**

3. Hardin, J.; **forestError** package as **author**; R statistical software. 2019. **creator** and **author**: Lu, B.. <https://github.com/benjilu/forestError>.
2. Hardin, J.; **infer** package as **contributor**; R statistical software. 2018. **creator** and **author**: Bray, A., **author**: Ismay, C., **author**: Chasnovski, E., **author**: Baumer, B., **author**: Çetinkaya-Rundel, M. <https://github.com/tidymodels/infer>.
1. Hardin, J.; **biwt** package as **creator** and **author**; R statistical software. 2009. <https://cran.r-project.org/package=biwt>

- **Other Papers**

21. Hardin, J., Çetinkaya-Rundel, M. **Computational + mathematical models in Introductory statistics**. *OpenIntro Blog*, June 27, 2021. <https://www.openintro.org/blog/article/2021-06-27-computational-and-mathematical-models-in-introductory-statistics/>.
20. Guest editor for *The Journal of Statistics and Data Science Education* with Nick Horton at Amherst College. Put together a special issue on computing in the statistics and data science curriculum. <https://www.tandfonline.com/toc/ujse21/29/1>.
 - Horton, N. and Hardin, J. **Integrating computing in the statistics and data science curriculum: Creative structures, novel skills and habits, and ways to teach computational thinking**, *The Journal of Statistics and Data Science Education*, 29: 1, 2021. <https://doi.org/10.1080/10691898.2020.1870416>
 - Hardin, J. and Horton, N. **Special Issue Focuses on Computing in Statistics Education**, *Amstat News*, February 2021. <https://magazine.amstat.org/blog/2021/02/01/jdse-computing-in-stats-ed/>
19. Hardin, J. and Shahriari, S. **Collaboration, Community, and the Climate in the Mathematics Department**, in *Access to Mathematics: Opening Doors for Students Currently Excluded*; 57, 2020. A companion booklet to CIME Workshop 15, February 21-23, 2018. <http://library.msri.org/cime/CIME-v14.pdf>
18. Glanz, H., Hardin, J., and Horton, N. **Teach Data Science**. Fourteen blog entries in the summer of 2020 with a focus on the ethical aspects of data science. <https://teachdatascience.com/closing2020/>
17. Glanz, H., Hardin, J., and Horton, N. **Teach Data Science**. Fifty blog entries in the summer of 2019 describing different aspects of data science and teaching data science. <https://teachdatascience.com/closing/>

16. Hardin, J., Miller, J. **The Evolution of Variables and the Existence of Trans People.** *Amstat News*, March 2019.
<http://magazine.amstat.org/blog/2019/03/01/evolutionofvariables/>
15. Horton, N., Hardin, J. **Challenges and Opportunities for Statistics and Data Science Undergraduate Major and Minor Degree Programs.** *Proceedings of the Tenth International Conference on Teaching Statistics*, 2018.
http://iase-web.org/icots/10/proceedings/pdfs/ICOTS10_3A3.pdf
14. Hardin, J., Horton, N. **Ensuring That Mathematics is Relevant in a World of Data Science,** *Notices of the AMS*, October, 2017.
13. Hardin, J. **Expectations and Skills for Undergraduate Students Doing Research in Statistics and Data Science,** *Amstat News*, September, 2017.
<http://magazine.amstat.org/blog/2017/09/01/undergraduateexpectations/>
12. Evans, C.[†], Hardin, J., Huber, M., Stoebel, D., and Wong, G.[†] **Differential expression analysis for multiple conditions.** 2017. <http://arxiv.org/abs/1410.3370>
11. Blog on the ASA's 2016 Presidential Election Prediction Contest,
<https://www.r-bloggers.com/presidential-election-predictions-2016-an-asa-competition/>
also featured on the Data Skeptic podcast,
<http://dataskeptic.com/epnotes/election-predictions.php>, 2016.
10. Blog on using tactile simulations in class, "Chocolate: tactile simulations without data collection," <https://www.causeweb.org/sbi/?p=1163>, 2016.
9. Guest editor for *The American Statistician* with Nick Horton at Amherst College. Put together a special issue on the ASA's 2014 updated curriculum guidelines for undergraduate programs in statistics <http://www.amstat.org/education/curriculumguidelines.cfm>.
 - Horton, N. and Hardin, J. **Teaching the Next Generation of Statistics Students to "Think with Data": Special Issue on Statistics and the Undergraduate Curriculum,** *The American Statistician*, 69: 4, 2015. [As of Oct 26, 2017, the second most read article in *The American Statistician*.]
 - Hardin, J. and Horton, N. "Preparing the Next Generation of Students in the Mathematical Sciences to 'Think with Data' ",
<http://blogs.ams.org/matheducation/2016/02/22/preparing-the-next-generation-of-st>
2016.
 - Horton, N. "Teaching Next Generation to 'Think with Data' ",
<http://www.datascienceassn.org/content/teaching-next-generation-think-data>,
2016.
8. Guest editor for *Chance*, put together a special issue on Culture of Statistics in Medicine. Responsible for finding all of the contributed articles, finding referees, refereeing, putting the articles together, and writing the following articles:
 - Hardin, J. **Editor's Letter,** *Chance*, 25: 3; 2012.

- Hardin, J. **Changes Across 25 Years of Medicine**, *Chance*, 25: 35-37; 2012. [This piece is a series of interviews with experts in the field of medicine on their views of how statistics is changing medicine. I interviewed the editor of the *New England Journal of Medicine*, a preeminent doctor/researcher of lung cancer, the director of the LA County Department of Public Health, and a Harvard statistician who sits on the editorial board of the *New England Journal of Medicine*.]
7. Hardin, J.; **Book Review: *DNA Microarrays and Related Genomics Techniques: Design Analysis, and Interpretation of Experiments* by D.B. Allison, G.P. Page, T.M. Beasley, and J.W. Edwards**, *Journal of Biopharmaceutical Statistics*, 17: 187-190; 2007.
 6. Hardin, J.; **Book Review: *Introduction to Statistics Through Resampling Methods and R/S-Plus* by Philip Good**, *The American Statistician*, 60: 343-344; 2006.
 5. Hardin, J.; **Book Review: *Design and Analysis of DNA Microarray Investigations* by R. M. Simon, E.L. Korn, L.M. McShane, M.D. Radmacher, G.W. Wright, and Y. Zhao**, *Journal of Biopharmaceutical Statistics*, 15: 747-749; 2005.
 4. Altman, N., Banks, D., Hardwick, J., Roeder, K., Craigmile, P., Hardin, J., and Gupta, M. **The IMS New Researchers' Survival Guide**, Institute of Mathematical Statistics; 2005. <http://www.imstat.org/publications/books/NewResearchersGuide.pdf>
 3. Hardin, J. **IMS New Researchers' Conference**, *IMS Bulletin*, 34: Issue 9, 5; 2005.
 2. Escobar, A.[†], Myhre, J., Hardin, J.; **Statistics Colloquia at Undergraduate Colleges**, *Amstat News*, Issue #331; January 2005,.
 1. Hardin, J.; **Microarray Data from a Statistician's Point of View**, *STATS: The Magazine for Students of Statistics*, 42: 4-13; Winter 2005.

STUDENT SUCCESSES

2 nd place Undergraduate Statistics Class (intermediate) Project Competition	2021
"A Regularized Cox Regression Approach to the Health Evaluation and Linkage to Primary Care (HELP) Clinical Trial", E. Ashby	
https://www.causeweb.org/usproc/usclap/2021/spring/winners	
DataFest – Judges' Choice Award	2021
H. Mandel, E. Tomz, A. Liang, C. Sun, I. Krupkin	
http://datafest.stat.ucla.edu/competition/2021-asa-datafesttm-results/	
2 nd place Undergraduate Statistics Research Project Competition	2020
"Exploring Missingness and its Implications on Traffic Stop Data", A. Lee	
https://www.causeweb.org/usproc/usresp/2020/fall/winners	
"Data Exploration of US Police Stops"	2020
A. Lee, A. Wonghirundacha, E. Godfrey, E. Ong, I. Yuan, O. Chang, and W. Gray	

Data Science Research Circle, supervised by J. Hardin and G. Sarkis https://hardin47.github.io/TrafficRC2020/Report/	
DataFest – Judges’ Choice Award G. Thampakkul and T. Xiang http://datafest.stat.ucla.edu/2020-results/2020-winners/	2020
C. Duron, PhD Claremont Graduate University “The Distribution of Betweenness Centrality in Exponential Random Graph Models” http://pages.pomona.edu/~jsh04747/Student%20Theses/christina_duron_2019.pdf	2019
DataFest – Best Use of External Data A. Watt, A. Rees, E. Ashby, C. Ford, and M. Andersen (HMC). http://datafest.stat.ucla.edu/past-datafests/2019-asa-datafesttm-results/	2019
DataFest – Best Insight, honorable mention V. Vohra, Z. Xu, M. Hobbs, X. Gui http://datafest.stat.ucla.edu/past-datafests/2018-asa-datafesttm-results/	2018
Winning Paper Undergraduate Statistics Research Project Competition https://www.causeweb.org/usproc/usresp/2017/fall/winners Bag of Little Random Bootstraps , Z. Xu	2017
DataFest – Judges’ Choice Award J. Carney, H. Shin, A. Starr http://datafest.stat.ucla.edu/past-datafests/2017-asa-datafesttm-results/	2017
Winning Paper Undergraduate Statistics Research Project Competition https://www.causeweb.org/usproc/USRESP%20Winning%20Projects Quantifying and Comparing Centrality Measures for Network Individuals as Applied to the Enron Corpus , T. Kaye, D. Khatami, D. Metz, E. Proulx (Research Circle)	2014
Kaye, T., Khatami, D., Metz, D., Proulx, E. Quantifying and Comparing Centrality Measures for Network Individuals as Applied to the Enron Corpus ; <i>SIAM Undergraduate Research Online</i> , 7 : 2014. https://www.siam.org/publications/siuro/volume-7	
DataFest – Best Insight J. Coleman, M. Cruz, B. DeRose, C. Evans, R. Knickerbocker, K. Lu, D. Owens-Oas, B. Shand, B. Williamson	2013
DataFest – Best Use of External Data K. Kumbier, E. Parks, J. Replogle	2012
DataFest – Best Visualization, honorable mention D. DiPalma, T. Stutz	2012

PROFESSIONAL WORKSHOPS & ORGANIZED SESSIONS

Computational Genomics Summer Institute, UCLA	July 2022
	Program Faculty
http://computationalgenomics.bioinformatics.ucla.edu/programs/cgsi-2022/	
Women in Data Science, Claremont, CA	April 2022
	Organizer
https://wids47-2022.netlify.app/	
StatFest	2016, 2018, 2020, 2021
	participant, organizer satellite event (2018)
https://community.amstat.org/cmisi/events/statfest	
Computational Genomics Summer Institute, UCLA	July 2019
	Program Faculty
http://computationalgenomics.bioinformatics.ucla.edu/programs/cgsi-2019/	
Computational Genomics Summer Institute, UCLA	July 2018
Journal Club	Program Faculty
http://computationalgenomics.bioinformatics.ucla.edu/programs/cgsi-2018/	
StatPREP	June 2018
Statistics workshop for community college instructors	Instructor
http://statprep.org/	
Computational Genomics Summer Institute, IPAM, UCLA	July 2017
Teaching Bioinformatics Lunch	Program Faculty
http://computationalgenomics.bioinformatics.ucla.edu/programs/cgsi-2017/	
Computational Genomics Summer Institute, IPAM, UCLA	July 2016
Tutorial on RNASeq Normalization and Differential Expression	Program Faculty
https://www.youtube.com/watch?v=YrQPA23PXS&index=6&list=PLHyI3FbmV0Sd763rgnjcgpgG3EkFgdK-2b	
http://computationalgenomics.bioinformatics.ucla.edu/programs/cgsi-2016/	
Computational & Visualization Consortium Workshop, Claremont, CA	June 2016
Dynamic Data and Working with Data	Organizer
http://cvc.mosaic-web.org/Summer2016/schedule2016.html	
Computational & Visualization Consortium Workshop, Claremont, CA	July 2015
Project: Dynamic Data	Funded Participant
Joint Statistical Meetings, Montreal	August, 2013
Herd Immunity: Teaching Techniques for the Health Sciences	Organizer
Institute for Pure and Applied Mathematics, UCLA	Fall, 2011
Mathematical and Computational Approaches in	Funded Participant
High-Throughput Genomics	

Strengthening Bridges between Statistics and the Natural Sciences Funded by the Mellon Foundation	January, 2011 Organizer
Student/Faculty Research Models in Computational Biology Funded by the Mellon Foundation	June 18-20, 2008 Organizer
The Future of Statistics Consultation, Training and Curriculum across the Liberal Arts College Funded by the Mellon Foundation	July 25-27, 2007 Organizer
Mathematical Sciences Research Institute, Berkeley, CA Mathematical Systems Biology of Cancer	May 3-5, 2006 Funded Participant
Mathematical Biosciences Institute, Columbus, OH Emerging Genomic Technologies and Data Integration Problems	February 21-24, 2005 Funded Participant
Genome Consortium on Active Teaching, Washington, DC Best Practices Workshop	July 6-9, 2004 Workshop Instructor
Genome Consortium on Active Teaching, Seattle, WA Best Practices Workshop	August 13-15, 2003 Founding Organizer

PROFESSIONAL PRESENTATIONS

“Professional Strategies in Statistics: Mentoring Students for Professional Success” Joint Statistical Meetings, Washington, DC	2022
“Teaching-focused careers” Preparing to Teach Workshop, Fairfax, VA	2022
“onlineFDR Control with Applications to RNA-Seq Data” Computational Genomics Summer Institute, UCLA	2022
“Grading for Equity” eCOTS (electronic Conference on Teaching Statistics)	2022
TPSE Panel: Exploring the Future of Mathematics Education - what should we be teaching? Joint Mathematical Meetings, virtual	2022
“The Objectivity of My Desire” http://mathematicaladventures.org/ , virtual Talk at https://www.youtube.com/watch?v=03b06yubSg8	2022
“Successful Strategies for Collaborative Undergraduate Research” University of Arizona Postdoc Seminar, virtual	2022
“Introduction to Statistics: A Modern Approach” AMATYC, virtual	2021
“Synchronous vs. Asynchronous Connections and Learning” Joint Statistical Meetings, virtual	2021

“Modernising the Introductory Statistics Course” ISI World Statistics Congress	2021
“Integrating Computational Thinking into Statistics Education” USCOTS 2021	2021
“Math for Data Science” 2021 National Workshop on Data Science Education, UC Berkeley	2021
“Computing in the Statistics and Data Science Curriculum” CAUSE webinar	2021
“A Unified Framework for Random Forest Prediction Error Estimation” UC Davis, Biostatistics Seminar	2021
“The Value of Computational Thinking in Statistics Education” Electronic Seminar on Mathematics Education	2021
“A Unified Framework for Random Forest Prediction Error Estimation” Department of Biostatistics, Columbia University	2020
“Difficult Dialogues: Communicating Data Analyses Effectively” Joint Statistical Meetings, virtual	2020
“A Unified Framework for Random Forest Prediction Error Estimation” Biostatistics Seminar, John Hopkins University	2020
“Using GitHub with Statistics Undergraduates” Symposium on Data Science and Statistics, Bellevue, WA	2019
“Normalization and Differential Expression” Computational Genomics Summer Institute, UCLA	2019
“Issues in sequencing depth when clustering genetic profiles measured across varying levels of Rpos protein” Computational Genomics Summer Institute, UCLA	2018
“Challenges and Opportunities for Statistics and Data Science Undergraduate Major and Minor Degree Programs” International Conference on Teaching Statistics, Kyoto, Japan	2018
“Prediction intervals for random forests” Applied Math Seminar, Claremont, CA	2018
“Why I mentor” Women in Statistics & Data Science, La Jolla, CA	2017
“Prediction intervals for random forests with applications to high throughput data” Computational Genomics Summer Institute, UCLA	2017
“Expectations and Skills for Undergraduate Students doing Research in Statistics and Data Science” Joint Statistical Meetings, Baltimore, MD	2017
“Assumptions in Normalizing RNA-Seq Data” Bioinformatics Seminar, UCLA, CA	2017

“Where do Mathematics and Statistics fit in to a World of Data Science?” Breaking Boundaries in STEM Education Research, Loyola Marymount University, CA	2017
“Dynamic Data in the Statistics Classroom” (e-poster) Women in Statistics and Data Science Conference, Charlotte, NC	2016
“Assumptions in Normalizing RNASeq Data” Computational Genomics Summer Institute, IPAM, UCLA	2016
“Dynamic Data in the Statistics Classroom” UseR, Palo Alto, CA	2016
“Dynamic Data in the Statistics Classroom” (5 min e-poster) eCOTS (electronic Conference on Teaching Statistics)	2016
“Resistant Multiple Sparse Canonical Correlation with High-Throughput Data” Statistics Seminar, UC Irvine	2016
“The Undergraduate Curriculum of the Future” Joint Statistical Meetings, Seattle, WA	2015
“ ‘Data’ vs. ‘Fest’: the student perspective at DataFest” Joint Statistical Meetings, Boston, MA	2014
“DESeq Plus: expanding DESeq to comparisons of more than 2 groups” EDGE Program Mathematics Colloquium, Claremont, CA (also presented at IPAM workshop, Lake Arrowhead, CA (2014); UCLA Statistics Seminar, LA, CA (2014))	2014
“Towards a more conceptual way of understanding and implementing inferential rules” Poster Presenter, International Conference on Teaching Statistics, Flagstaff, AZ	2014
“Big Data, Data Science, and Next Steps for the Undergraduate Curriculum” Electronic Conference on Teaching Statistics	2014
“Robust Sparse Canonical Correlation with High-Throughput Data” IPAM workshop, Lake Arrowhead, CA	2013
“Biweight Estimation for Robust Analysis of High Throughput Data” International Conference on Robust Statistics, Burlington, VT	2012
“Exploring Relationships: A Method for Generating Realistic Correlation Matrices” Loyola Marymount University, Statistics Seminar (also presented at CSU Fullerton, Statistics Seminar (2011))	2012
“Outliers when clustering microarray data” 3 rd Annual Southern California Women in Math Symposium, Claremont, CA (also presented at Claremont Colleges OR / Statistics / Math Finance Seminar, Claremont, CA (2009); Claremont Colleges Mathematics Colloquium, Claremont, CA (2008); Joint Statistical Meetings, Denver, CO (2008))	2010

- “Using False Discovery Rates to Determine Cutoffs for Cluster Membership” 2010
Joint Statistical Meetings, Vancouver, BC
- “Biweight Correlation as a Measure of Correlation Between Genes on a Microarray” 2008
Statistics Colloquium, San Diego State University
(also presented at Department of Statistics, Cal Poly, San Luis Obispo (2006);
Division of Biostatistics, UC Davis (2006);
Department of Statistics & Actuarial Science, U of Waterloo (2006);
Horvath working group, UCLA (2005))
- “A Robust Measure of Correlation Between Two Genes on a Microarray” 2007
Graduate Seminar in Mathematics, CSU, Channel Islands
(also presented at Claremont Colleges Statistics Colloquium, Claremont, CA (2007);
Department of Statistics, UC, Riverside (2006);
Colloquium for Women in Mathematics, University of Southern California (2006);
Howard Hughes Summer Series, Claremont, CA (2006))
- “Analyzing DNA Microarray Data with Undergraduate Statisticians” 2006
Invited speaker, Joint Statistical Meetings, Seattle, WA
(also presented at Invited speaker, 7th International Conference on Teaching Statistics, Salvador, Brazil (2006))
- “Collaborating, Data Analysis, and Science in Statistical Education” 2005
Invited Speaker, Joint Statistical Meetings, Minneapolis, MN
- “Using Robust Measures to Describe Distributions and Similarities of Microarray Data” 2005
Mathematics Colloquium, Cal State Univ, Long Beach
(also presented at US/Japan Conference on Biostatistics, Seattle, WA (2004);
Joint Statistical Meetings, Toronto, Ontario (2004))
- “Variability Sources in Gene Expression Data” 2004
Poster Presenter, Intelligent Systems of Molecular Biology, Glasgow, Scotland
- “Transformations and Simulations of Microarray Data” 2003
Statistics Colloquium, University of California San Diego
- “Simulating microarray data using the t-distribution” 2003
Joint Statistical Meetings, San Francisco, CA
(also presented at Working Group on Model Based Clustering, University of Washington, Seattle, WA (2003))
- “Analyzing Microarray Data – Difficulties and Disasters” 2003
Claremont Colleges Statistics Colloquium, Claremont, CA
(also presented at Claremont Colleges Mathematics Colloquium, Claremont, CA (2003))
- “Model Based Clustering and Outlier Detection in Microarray Data” 2002
Invited Speaker, Joint Statistical Meetings, New York City, NY
- “The Use of Gene Expression Profiling in the Quest to Understand the Molecular Basis of Multiple Myeloma” 2001
Invited presenter, Southwest Oncology Group Continuing Education Workshop, Chicago, IL
- “Determining Outlying Points” 2001
Williams College Mathematics and Statistics Colloquium, Williamstown, MA
(also presented at Claremont Colleges Mathematics Colloquium, Claremont, CA (1999))

- “A Basic Overview of Analyzing Microarray Data” 2001
Statistics Seminar, Department of Statistics, University of California, Davis
- “Outlier Detection: an Application to Microarray Data” 2001
Microarray Working Group, Department of Biostatistics, University of Washington, Seattle, WA
- “Robust Model-Based Clustering of Genes in Microarray Data: Are there gene clusters?” 2000
Poster presenter, Critical Assessment of Microarray Data Analysis, Duke University, Durham, NC
- “Robust Clustering with Minimum Covariance Determinant Estimation” 2000
Invited Speaker, 7th Conference of the International Federation of Classification Societies, Namur, Belgium
- “The Distribution of Robust Distances” 1999
New Researchers Conference, Sponsored by the Institute of Mathematical Statistics, Baltimore, MD
(also presented at Joint Meeting of the Western North American Region of the International Biometric Society and the Institute of Mathematical Statistics, Seattle, WA (1999);
Workshop on Robust Analysis of Multivariate Data: Outlier Detection, Cluster Identification, and Data Mining. Technische Universität Braunschweig, Braunschweig, Germany (1998))

OTHER PRESENTATIONS

- Pomona College Sagecast 2020
<https://www.pomona.edu/sagecast>
- “The objectivity of my desires... (and you thought statistics was boring!)” 2018
Pomona in the City, Seattle, WA
- “Collaboration, Community, and Climate” 2018
Critical Issues in Mathematics Education Workshop, MSRI, Berkeley, CA
- “Models, Bias, and Social Justice” 2017
Math Snacks, Department of Mathematics, Pomona College, CA
- “Communities of Learning in a Math Department” 2016
AALAC Conference on Inclusivity in Economics, Pomona College, CA
- “Finding Life’s Music Through Statistical Noise” 2012
Fall Faculty Lecture Series, Pomona College, CA
- “9 out of 10 Seniors Prefer This Freshman Seminar” 2012
Topic session on first year seminars in statistics:
Catch 'Em While They're Young: Statistics as a First-Year Seminar
Joint Statistical Meetings, San Diego, CA
(also presented at Family Weekend, Pomona College (2011); CAUSE Webinar, Teaching & Learning Series (2009))
- “Bayes Goes to Bat: using baseball to introduce Bayesian estimation” 2009
CAUSE Webinar, Activity Series
- “Polling and Exit Polling” 2008
Panel on Election Polling, Pomona College
- “Statistical Conundrums” 2007
Parents’ Weekend, Pomona College
(also presented at Mathematics Talent Search Honors Day, Pomona College (2005))

“Translating Statistical Results into Public Policy” 2003
 Panelist for the forum on “The Translator’s Art – Basic Problems in Different Languages,”
 sponsored by the Pacific Basin Institute, Claremont, CA

PROFESSIONAL SERVICE

Chair-elect, Chair, Past-chair, Section on Statistics and Data Science Education	2020-2022
Member, ASA’s Justice, Equity, Diversity, Inclusion Outreach Group	2019 - present
Associate Editor, <i>The American Statistician</i>	2014-present
Associate Editor, <i>Journal of Statistics Education</i>	2013-present
Associate Editor, <i>Chance</i>	2010 - present
MAA Hogg Award Selection Committee	2014-2016
Judge, USPROC competition	2019 - present
Judge, Intel International Science Fair	2011, 2014, 2017, 2021
Judge, UCLA DataFest	2020 - present
Mentor, Section on Statistics & Data Science Education	2020, 2021, 2022
elected Vice Chair, District 6, Council of Chapters Governing Board of ASA	2014-2016
ASA Workgroup to Revise the Undergraduate Guidelines for Statistics Programs	2013-2014
Search Committee for Executive Editor, <i>Chance</i>	2010 & 2013
Waller Education Award Committee	2008-2011
elected Treasurer, Southern California ASA	2008-2014
elected Representative-at-Large, ASA Section on Statistics Education	2007-2009
Reader, AP Statistics Exam	2006
Judge, WNAR Student Paper Competition	2006
President, Sigma Xi, Claremont Colleges Chapter	2004-2005
Chair, IMS New Researchers Committee	2004-2005
Co-founded and help organize Claremont Colleges Statistics Colloquium	2003-present
Vice President, Sigma Xi, Claremont Colleges Chapter	2003-2004
elected Secretary, Caucus for Women in Statistics	2002-2004
Member, New Researchers Committee	2002-2005
elected Representative-at-Large, Caucus for Women in Statistics	2000-2002
Referee, <i>Technology Innovations in Statistics Education</i> , <i>Chance</i> , <i>Journal of the American Statistical Association</i> , <i>BMC Medical Genomics</i> , <i>Journal of Computational and Graphical Statistics</i> , <i>BMC Bioinformatics</i> , <i>Cancer Informatics</i> , <i>Statistics & Computing</i> , <i>Journal of Statistics & Data Science Education</i> , <i>Statistics in Medicine</i> , <i>IEEE/ACM Transactions on Computational Biology and Bioinformatics</i> , <i>Briefings in Bioinformatics</i> , <i>Statistical Applications in Genetics and Molecular Biology</i> , <i>Bioinformatics</i> , <i>Computational Statistics and Data Analysis</i> , <i>Knowledge and Information Systems</i> , <i>The American Statistician</i> , <i>PLoS ONE</i> , <i>Reinvention: a Journal of Undergraduate Research</i>	
Reviewer, Springer	2010
Reviewer, CRC Press	2009
Reviewer, Key College Press	2003
Reviewer, Prentice Hall	2003

COLLEGE SERVICE

Inclusive Excellence Committee	2020-present
President, Pomona College Chapter of Phi Beta Kappa	2015-2016 & 2020-2021
	Phi Beta Kappa Outstanding Chapter Award, 2021
Executive Committee	2019-2020
Critical Thinking and Writing Committee	2018-2019
Posse Mentor (Chicago, PP13)	2017-2021
Faculty Personnel Committee	2016-2018
Search committee to hire Athletic Director	2015
Pomona Scholars of Mathematics Faculty	2014-2017
Vice President, Pomona College Chapter of Phi Beta Kappa	2014-2015
Faculty Athletic Representative	2013-2016
Health Sciences Committee	2010-2011, 2012-2013
Ad Hoc Faculty Advisor, Pomona Student Union, 2010 - present	
Chair, search committee tenure-track line in Statistics	2009-2010
Grievance Committee	2008-2010
Dean Search Committee	2008
Orientation Committee	2006-2008
Chair, search committee to hire a three-year post-doctoral Statistician	2004-2005
Search committee to hire a Statistician at HMC	2004-2005
Search committee to hire a Bioinformatician (Biology department)	2004-2005
Smith Campus Center Planning Committee	2004-2005
Alumni Association Strategic Planning Committee	2004-2005
Ad Hoc Advisor, Pomona College Student Affairs Committee	2003-present
Alumni Admissions Volunteer, Pomona College	1995-present

OTHER SERVICE

Alumni Panelist for student athletes	2021
Introduction of Michael Starbird, honorary degree recipient	2014
Host for the Downing College Scholar	2014
Pomona Academy for Youth Success Faculty	2012
Enhancing Diversity in Graduate Education (EDGE)	
Instructor (short course)	2008
Summer Scholars Enrichment Program Mathematics Faculty	2008
Orientation Adventure faculty representative	2005, 2006
Summer Scholars Enrichment Program Research Faculty	2006
Seminar on how to use L ^A T _E X for math undergraduates	2005, 2006, 2009
Organized a panel for undergraduates: "Women in Mathematics", Pomona College	2005
Volunteer Swim Instructor, Pomona College	2003
President, Division of Statistics Graduate Student Group	1999-2000
Teaching Assistant Consultant, Teaching Resources Center, UC Davis	1998-2000
Recruitment Committee, Division of Statistics, UC Davis	1998-2000
Mentor for Undergraduate, Opportunities in Engineering and Science, UC Davis	1998