April 2023	Johanna S. Hardin	Professor

610 N. College Ave.	jo.hardin@pomona.edu
Department of Mathematics	
Claremont, CA 91711	
(909) 607-8717 <u>EDUCATION</u>	
Ph.D. Statistics, University of California, Davis	2000
Dissertation: Multivariate Outlier Detection and Robust Clusteri	
with Minimum Covariance Determinant Estimation and S-Estim	_
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 Tea Introductory Statistics	ching 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, &	
Julius Blum Award, Division of Statistics, UC Davis Phi Bata Kappa, Pomona College	1995-1996 1995
Phi Beta Kappa, Pomona College Sigma Xi, Pomona College	1995
Graduated Cum Laude, (B.A.), Pomona College	1995
Graduated with Honors, Mathematics Department, Pomona College	1995

FELLOWSHIPS AND GRANTS

Howard Hughes Medical Institute IE3 Learning Grant PI: Jane Liu Role: Leadership Team Member	2021-2023 \$30,000
NIH National Institute of General Medical Sciences Title: "A Training Module for Reproducible Data Science Research"	2021-2024
PI: Roger Peng Role: External advisory committee	\$94,168
NSF HDR DSC: Collaborative Research, external advisory committee Title: "The Data Science WAV: Experiential Learning with Local Community Orga	
PI: Benjamin Baumer Role: External advisory committee	\$581,902
NSF Improving Undergraduate STEM Education (IUSE) Grant Title: "Creating Opportunities for Data Proficiency in Undergraduate Students"	2017-2020
PI: Anna Bargagliotti Role: Advisory panelist	\$265,853
NIH Mouse Models of Human Cancers Consortium Grant Title: "Leveraging Genetically-Engineered Mice to Optimize Pediatric Glioma"	2015-2019
PI: David Gutmann & Ami Radunskaya Role: Co-principal Investigator	\$160,916.93
CHAS Faculty Grant Proposal for Promoting Excellence Consortium on High Achievement and Success	2014-2015
Title: "Advising Traditionally Underrepresented Students for Retention in Mathem Principal Investigator	atics" \$6,400
HHMI 5C Summer Collaborative Grant Title: "The role of RpoS level in regulating genome-wide patterns of transcription"	Summer 2013
Role: Principal Investigator	\$13,000
Mellon Foundation Workshop Grant Title: "Strengthening Bridges between Statistics and the Natural Sciences"	January 2011
Role: Principal Investigator	\$19,100
National Science Foundation Research Experience for Undergraduates summers 20 Title: "Claremont Colleges Mathematics REU Site"	009, 2010, 2011
PI: Christopher Towse Role: Co-principal Investigator	\$275,000

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

Title: "Genomic and Genetic Analysis for Pomona College"

PI: Laura Hoopes \$233,000

Role: Senior Investigator

University of California, Davis Fellowship

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. Hardin, J., Shahriari, S. Community, Collaboration, and Climate, *PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies* 33(5), 2023. https://doi.org/10.1080/10511970.2022.2082611
- 35. Ashby, E.[†], Paddock, L.[†], Rollosson, 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**, mSphere 7(3), 2022. https://doi.org/10.1128/msphere.00023-22
- 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*, 14, 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, 22(8), 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*, 29(S1): S51-S60, 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 thermoreflectance imaging, Review of Scientific Instruments, 91: 044901, 2020. https://doi.org/10.1063/1.5135922

2003-2006

1995 - 1997

[†]Work done as an undergraduate student.

[‡]Co-corresponding authors.

- 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
- 28. Fiksel, J., Jager, L., Hardin, J., Taub, M. Using GitHub Classroom To Teach Statistics, Journal of Statistics Education, 27(2): 110-119, 2019. https://www.tandfonline.com/doi/full/10.1080/10691898.2019.1617089
- 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. https://link.springer.com/article/10.1007/s11538-018-0526-z
- 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-tutoria
 - 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-conuseR2016/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.

 Now available on USGS as an interactive map: https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=c14edac7e91b4fc5ade4042e3036ec58.
- 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.
- 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

- 3. Ashby, E.[†], Havens, J.[†], Hardin, J., Schulz, D. Chemical inhibition of bromodomain proteins in insect stage African trypanosomes perturbs silencing of the Variant Surface Glycoprotein repertoire and results in widespread changes in the transcriptome, *Microbiology Spectrum*, accepted, 2023. https://www.biorxiv.org/content/10.1101/2023.01.09.523188v1
- 2. Cruz, M.[†], Wei, A.[†], Hardin, J., and Radunskaya, A. Long Term Averages of the Stochastic Logistic Map. Submitted, 2023. https://arxiv.org/abs/2206.03849
- 1. Adams, J.[†], Hoang, J.[†], Petroni, E.[†], Ashby, E.[†], Hardin, J., Stoebel, D. **The timing of transcription of RpoS-dependent genes varies across multiple stresses**, submitted, 2023. https://www.biorxiv.org/content/10.1101/2023.02.17.528066v1

• 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

- 22. Hardin, J. Data. Solitude, Benton Museum of Art, 2023.
- 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-stream.
 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.

• In Progress

Ashby, $E.^{\dagger}$, Havens, $J.^{\dagger}$, Hardin, J., Schulz, D.; Chemical inhibition of bromodomain proteins in insect stage African trypanosomes perturbs silencing of the Variant Surface Glycoprotein repertoire and results in widespread changes in the transcriptome. In progress.

Hoang, J.[†], Petroni, E.[†], Adams, J.[†], Ashby, E.[†], Hardin, J., Stoebel, D.; **The timing of transcription of RpoS-dependent genes varies across multiple stresses**. In progress.

STUDENT SUCCESSES

Finalist in the MD++ Datathon 2022 as part of team 'WeLoveRData' Pipi Gao '22 https://medium.com/mdplusplus/inaugural-md-datathon-2022-4947b28b2181	2022
DataFest - The Don Ylvisaker Best Insight Award (Honorable Mention) Xuehuai He '25, Saatvik Kher '24, Samson Zhang '25 http://datafest.stat.ucla.edu/2022-asa-datafesttm-results	2022
DataFest - Best Use of Statistical Models (Honorable Mention) Aditya Bhalla '23, Alan Zhou '23 http://datafest.stat.ucla.edu/2022-asa-datafesttm-results/	2022
2 nd place Undergraduate Statistics Class (intermediate) Project Competition "A Regularized Cox Regression Approach to the Health Evaluation and Linkage to Primary (HELP) Clinical Trial", E. Ashby '21 https://www.causeweb.org/usproc/usclap/2021/spring/winners	2021 Care
DataFest - Judges' Choice Award H. Mandel '23, E. Tomz '23, A. Liang '23, C. Sun '23, I. Krupkin '23 http://datafest.stat.ucla.edu/competition/2021-asa-datafesttm-results/	2021
2 nd place Undergraduate Statistics Research Project Competition "Exploring Missingness and its Implications on Traffic Stop Data", A. Lee '22 https://www.causeweb.org/usproc/usresp/2020/fall/winners	2020
"Data Exploration of US Police Stops" A. Lee '22, A. Wonghirundacha '22, E. Godfrey '21, E. Ong '21, I. Yuan '21, O. Chang '22, W. Gray '22 Data Science Research Circle, supervised by J. Hardin and G. Sarkis https://hardin47.github.io/TrafficRC2020/Report/	2020 2, and
DataFest - Judges' Choice Award G. Thampakkul '23 and T. Xiang '23 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

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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/cmis/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/

Project: Dynamic Data

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=YrQPA23PXSY&index=6&list=PLHyI3Fbmv0Sd763rgnjcgpG3EkFgdK-2bhttp://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

Joint Statistical Meetings, Montreal

Funded Participant
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

January, 2011 Organizer

Funded by the Mellon Foundation

Student/Faculty Research Models in Computational Biology

June 18-20, 2008

Funded by the Mellon Foundation

Funded by the Mellon Foundation

 ${\bf Organizer}$

The Future of Statistics Consultation, Training and Curriculum

across the Liberal Arts College

July 25-27, 2007

Organizer

Mathematical Sciences Research Institute, Berkeley, CA

May 3-5, 2006

Mathematical Systems Biology of Cancer

Funded Participant

Mathematical Biosciences Institute, Columbus, OH

February 21-24, 2005

Emerging Genomic Technologies and Data Integration Problems

Funded Participant

Genome Consortium on Active Teaching, Washington, DC Best Practices Workshop
Genome Consortium on Active Teaching, Seattle, WA

Best Practices Workshop

July 6-9, 2004 Workshop Instructor August 13-15, 2003 Founding Organizer

PROFESSIONAL PRESENTATIONS

"Data Science and Social Justice" Virtual Applied Data Science Training Institute, Howard University	2022
"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 https://www.youtube.com/watch?v=f6hsEsjGOac	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	g?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 (200 Claremont Colleges Mathematics Colloquium, Claremont, CA (2008); Joint Statistical Meetings, Denver, CO (2008))	2010 09);
"Using False Discovery Rates to Determine Cutoffs for Cluster Membership" Joint Statistical Meetings, Vancouver, BC	2010
"Biweight Correlation as a Measure of Correlation Between Genes on a Microarray" Statistics Colloquium, San Diego State University (also presented at Department of Statistics, Cal Poly, San Luis Obispo (2006); Division of Biostatistics, UC Davis (2006); Deptartment of Statistics & Actuarial Science, U of Waterloo (2006); Horvath working group, UCLA (2005))	2008
"A Robust Measure of Correlation Between Two Genes on a Microarray" Graduate Seminar in Mathematics, CSU, Channel Islands (also presented at Claremont Colleges Statistics Colloquium, Claremont, CA (2007);	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" Invited speaker, Joint Statistical Meetings, Seattle, WA (also presented at Invited speaker, 7 th International Conference on Teaching Statistics, Salvador, 1 (2006))	2006 Brazil
"Collaborating, Data Analysis, and Science in Statistical Education" Invited Speaker, Joint Statistical Meetings, Minneapolis, MN	2005
"Using Robust Measures to Describe Distributions and Similarities of Microarray Data" Mathematics Colloquium, Cal State Univ, Long Beach (also presented at US/Japan Conference on Biostatistics, Seattle, WA (2004); Joint Statistical Meetings, Toronto, Ontario (2004))	2005
"Variability Sources in Gene Expression Data" Poster Presenter, Intelligent Systems of Molecular Biology, Glasgow, Scotland	2004
"Transformations and Simulations of Microarray Data" Statistics Colloquium, University of California San Diego	2003
"Simulating microarray data using the t-distribution" Joint Statistical Meetings, San Francisco, CA (also presented at Working Group on Model Based Clustering, University of Washington, Seattle, WA (2)	2003))
"Analyzing Microarray Data – Difficulties and Disasters" Claremont Colleges Statistics Colloquium, Claremont, CA (also presented at Claremont Colleges Mathematics Colloquium, Claremont, CA (2003))	2003
"Model Based Clustering and Outlier Detection in Microarray Data" Invited Speaker, Joint Statistical Meetings, New York City, NY	2002
"The Use of Gene Expression Profiling in the Quest to Understand the Molecular Basis of Multiple Myeloma" Invited presenter, Southwest Oncology Group Continuing Education Workshop, Chicago, IL	2001
"Determining Outlying Points" Williams College Mathematics and Statistics Colloquium, Williamstown, MA (also presented at Claremont Colleges Mathematics Colloquium, Claremont, CA (1999))	2001
"A Basic Overview of Analyzing Microarray Data" Statistics Seminar, Department of Statistics, University of California, Davis	2001
"Outlier Detection: an Application to Microarray Data" Microarray Working Group, Department of Biostatistics, University of Washington, Seattle,	2001 WA
"Robust Model-Based Clustering of Genes in Microarray Data: Are there gene clusters?" Poster presenter, Critical Assessment of Microarray Data Analysis, Duke University, Durham	2000 n, NC
"Robust Clustering with Minimum Covariance Determinant Estimation" Invited Speaker, 7th Conference of the International Federation of Classification Societies, Namur, Be	2000 lgium

"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 https://www.pomona.edu/sagecast	2020
"The objectivity of my desires (and you thought statistics was boring!)" Pomona in the City, Seattle, WA	2018
"Collaboration, Community, and Climate" Critical Issues in Mathematics Education Workshop, MSRI, Berkeley, CA	2018
"Models, Bias, and Social Justice" Math Snacks, Department of Mathematics, Pomona College, CA	2017
"Communities of Learning in a Math Department" AALAC Conference on Inclusivity in Economics, Pomona College, CA	2016
"Finding Life's Music Through Statistical Noise" Fall Faculty Lecture Series, Pomona College, CA	2012
"9 out of 10 Seniors Prefer This Freshman Seminar" 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 & Lea Series (2009))	2012 arning
"Bayes Goes to Bat: using baseball to introduce Bayesian estimation" CAUSE Webinar, Activity Series	2009
"Polling and Exit Polling" Panel on Election Polling, Pomona College	2008
"Statistical Conundrums" Parents' Weekend, Pomona College (also presented at Mathematics Talent Search Honors Day, Pomona College (2005))	2007
"Translating Statistical Results into Public Policy" Panelist for the forum on "The Translator's Art – Basic Problems in Different Languages," sponsored by the Pacific Basin Institute, Claremont, CA	2003

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, The American Statistician	2014-present
Associate Editor, Journal of Statistics Education	2013-present
Associate Editor, Chance	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, Chance	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, Technology Innovations in Statistics Education, Chance, Journal of the A	American Statisti-
cal Association, BMC Medical Genomics, Journal of Computational and Graphical	al Statistics, BMC
Bioinformatics, Cancer Informatics, Statistics & Computing, Journal of Statistics	s & Data Science
Education, Statistics in Medicine, IEEE/ACM Transactions on Computational B	Riology and Bioin-
formatics, Briefings in Bioinformatics, Statistical Applications in Genetics and M	${\it Nolecular\ Biology},$
Bioinformatics, Computational Statistics and Data Analysis, Knowledge and Info	$rmation\ Systems,$
The American Statistician, PLoS ONE, Reinvention: a Journal of Undergraduat	e Research
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 l	Kappa Outstanding Chapter Award, 2021
Executive Committee	2019-2020
Critical Thinking and Writing Committee	2018-2019
Posse Mentor (Chicago, PP13)	2017-2021

	2010 2010
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	2014
Enhancing Diversity in Graduate Education (EDGE)	2012
Instructor (short course)	2008
Summer Scholars Enrichment Program Mathematics Faculty	2008
Orientation Adventure faculty representative	2005, 2006
Summer Scholars Enrichment Program Research Faculty	2005, 2006
Seminar on how to use LATEX for math undergraduates	2005, 2006, 2009
Organized a panel for undergraduates: "Women in Mathematics", Pomona	
Volunteer Swim Instructor, Pomona College	2003 2003
President, Division of Statistics Graduate Student Group	1999-2000
Teaching Assistant Consultant, Teaching Resources Center, UC Davis	1999-2000
Recruitment Committee, Division of Statistics, UC Davis	1998-2000
necronaneo, vonumbree invision of Maristics IIV/Davis	1990-2000

Mentor for Undergraduate, Opportunities in Engineering and Science, UC Davis

1998