Curriculum Vitae

R. Dennis Cook

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Education

Ph.D.	1971	Statistics	Kansas State University
M.S.	1969	Statistics	Kansas State University
B.S.	1967	Mathematics	Northern Montana College

Employment

School of Statistics, University of Minnesota—Twin Cities
Full Professor 1981–present.
Associate Professor 1975–1981.
Assistant Professor 1971–1975.
Director, School of Statistics 2013–2016.
Chair, Department of Applied Statistics 1980–1990.
Director, Statistical Center 1978-1980.

Los Alamos National Laboratories
Visiting Staff Member 1975-2000

Visiting Professor
Penn State University 2000
University of Waikato, New Zealand 1991
University of Witwatersrand, South Africa 1987
Nanjing Institute of Technology, People's Republic of China 1986
University of Texas at Austin 1984
University of Wisconsin, Mathematics Research Center 1983-1984
University of Southampton, England 1979

Adjunct Professor
Clemson University
Institut Agronomique et Veterinaire Hassan II, Morocco

Professional Honors and Recognitions

- NIH Traineeship, 1967-1968
- NDEA Fellowship, 1968-1971
- Hartley Fellow, University of Southampton, England, 1979
- Fellow, American Statistical Association, 1982

- Fellow, Institute of Mathematical Statistics, 1987
- Elected member, International Statistical Institute, 1987
- Frank Wilcoxon Award for Best Technical Paper in *Technometrics*: Cook, R. D. and Wang, P. C. (1983), "Transformations and Influential Cases in Regression", *Technometrics* **25**, 337-344.
- Jack Youden Prize for Best Expository Paper in *Technometrics*: Beckman, R. and Cook, R. D. (1983), "Outlier.....s (with discussion)", *Technometrics* **25**, 119-149.
- Jack Youden Prize for Best Expository Paper in *Technometrics*: Cook, R. D. and Weisberg, S. (1989), "Regression Diagnostics with Dynamic Graphics (with discussion)", *Technometrics* **31**, 277-311.
- Honorary Senior Research Fellow, University of Birmingham, England, 1993–2000
- Jack Youden Prize for Best Expository Paper in *Technometrics*: Cook, R. D. (1993), "Exploring Partial Residual Plots", *Technometrics* **35**, 351-362.
- American Statistical Association Award for Excellence in Continuing Education, 1997.
- Scholar of the College, College of Liberal Arts, University of Minnesota, 1997–present.
- Inaugural Award for the best article published in the *Australian and New Zealand Journal of Statistics:* Cook, R. D. and Yin, X. (2001). "Dimension-reduction and visualization in discriminant analysis (Invited with discussion)". *Australian & New Zealand Journal of Statistics*, **43**, 147–200.
- Dean's List for excellence in undergraduate education, 2003.
- ISI Highly Cited Researcher in Mathematics. (See IMS Bulletin Vol 32, No. 3, May/June 2003 for details.)
- QSRC Lifetime Achievement Award, 2005.
- Fisher Award and Lectureship, awarded by COPSS 2005. Lecture title: *Dimension Reduction in Regression.*
- Dean's Medal, College of Liberal Arts, 2005
- Sabbatical Supplement Award, College of Liberal Arts, 2005.
- Microsoft Visiting Fellowship, Newton Institute for Mathematical Sciences, Cambridge, UK, 2008.
- EPSRC Visiting Fellowship, Newton Institute for Mathematical Sciences, Cambridge, UK, 2008.
- Sabbatical Supplement Award, College of Liberal Arts, 2012.
- Jack Youden Award for the best expository paper in *Technometrics*: Albrecht, M. C., Nachtsheim, C. J., Albrecht, T. A. and Cook, R.D. (2013). "Experimental Design for Engineering Dimensional Analysis (with discussion)". *Technometrics* **55**, 257-270.
- Alumni Fellow, Kansas State University, 2016.
- "Cook's Distance and Beyond: A Conference Celebrating the Contributions of R. Dennis Cook," held at the University of Minnesota, March 21–22, 2019. The record of a conversation that took place at the conference will appear in *Statistical Science.*

Publications

Books

Cook, R. D. (2018). *An Introduction to Envelopes: Dimension Reduction for Efficient Estimation in Multivariate Statistics.* New York: Wiley.

Cook, R. D. and Weisberg, S. (1999). *Applied Regression including Computing and Graphics.* New York: Wiley

Cook, R. D. (1998). *Regression Graphics: Ideas for Studying Regressions Through Graphics*. New York: Wiley.

Cook, R. D. and Weisberg, S. (1994). *An Introduction to Regression Graphics*. New York: Wiley.

Cook, R. D. and Weisberg, S. (1982). *Residuals and Influence in Regression*. London & New York: Chapman & Hall.

Edited Books

Cook, R. D. (1990). *Cumulative Index to Linear Models*. Washington: American Statistical Association.

Refereed Research Articles

Cook, R. D. and Nassar, R. F. (1972). Dynamics of finite populations. I. The expected time to fixation or loss and the probability of fixation of an allele in a haploid population of variable size. *Biometrics*, **28**, 373–384.

Cook, R. D. and Nassar, R. F. (1972). Probability of ultimate survival of a newly occurred inversion in natural populations. *Theoretical and Applied Genetics*, **42**, 368–370.

Gerrard, D. J. and Cook, R. D. (1972). Inverse binomial sampling as a basis for estimating negative binomial population densities. *Biometrics*, **28**, 971–980.

Nassar, R. F. and Cook, R. D. (1973). Dynamics of finite populations. II. A time–homogeneous stochastic process describing the ultimate probability of and expected time to fixation of an allele in a population of variable size. *Theoretical and Applied Genetics*, **43**, 255–260.

Hartl, D. L. and Cook, R. D. (1973). Balanced polymorphisms of quasi-neutral alleles. *Theoretical Population Biology*, **4**, 163–172.

Cook, R. D. and Weisberg, S. (1973). A note on the estimate of individual admixture. *Annals of Human Genetics*, **37**, 355–358.

Ginn, R. E., Packard, V. S. and Cook, R. D. (1973). A truncated sequential procedure for determining somatic cell count of milk by the strip method. *Journal of Milk and Food Technology*, **36** , 478–481.

Hartl, D. L. and Cook, R. D. (1974). Auto correlated random environments and their effects on gene frequency. *Evolution*, **28**, 275–280.

Cook, R. D. and Martin, F. B. (1974). A model for quadrant sampling with 'visibility bias'. *Journal of the American Statistical Association*, **69**, 345–349.

Nassar, R. F., Muhs, H. and Cook, R. D.(1974). Frequency–dependent selection at the Payne inversion in Drosophila melanogaster. *Evolution*, **27**, 558–564.

Nassar, R. F. and Cook, R. D. (1974). Ultimate probability of fixation and time to fixation or loss of a gene under a variable fitness model. *Theoretical and Applied Genetics*, **44**, 247–254.

Cook, R. D. and Hartl, D. L. (1974). Uncorrelated random environments and their effects on gene frequency. *Evolution*, **28**, 265–274.

Nassar, R. F. and Cook, R. D. (1975). Dynamics of finite populations. III. A note on the rate of approach to homozygosity in a haploid population whose size is a random variable. *Theoretical and Applied Genetics*, **45**, 300–303.

Hartl, D. L. and Cook, R. D. (1975). Stochastic Selection in large and small populations. *Theoretical Population Biology*, **7**, 55–63.

Cook, R. D. and Nassar, R. F. (1975). The amino acid composition of proteins: A method of analysis. *Theoretical Population Biology*, **7**, 64–83.

Cook, R. D. and Hartl, D. L. (1976). Estimating of inbreeding by random walks in pedigrees. *Theoretical and Applied Genetics*, **48**, 171–178.

Cook, R. D. and Nassar, R. F. (1976). Non–randomness of nucleotide bases in mRNA codons. *Genetical Research*, **27**, 353–362.

Cook, R. D. and Hartl, D. L. (1976). Stochastic selection and the maintenance of genetic variation. *Population Genetics and Ecology*, New York: Academic Press, Inc.

Cook, R. D. (1977). Detection of influential observations in linear regression. *Technometrics*, **19**, 15–18.

Cook, R. D. and Jacobson, J. O. (1978). Analysis of 1977 West Hudson Bay snow goose surveys. *Canadian Wildlife Service*.

Cook, R. D. and Jacobson, J. O. (1979). A design for estimating visibility bias in aerial surveys. *Biometrics*, **35**, 735–742.

Beckman, R. J. and Cook, R. D. (1979). Testing for two–phase regression. *Technometrics*, **21**, 65–70.

Cook, R. D. (1979). Influential observations in linear regression. *Journal of the American Statistical Association*, **74**, 169–174.

Cook, R. D. (1980). Smoking and Lung Cancer. In *R. A. Fisher: An Appreciation*, S. E. Fienberg and D. V. Hinkley, eds., New York: Springer–Verlag.

Cook, R. D. and Thibodeau, L. (1980). Marginally restricted D–optimal designs. *Journal of the American Statistical Association*, **75**, 366–371.

Cook, R. D. and Nachtsheim, C. J. (1980). A comparison of algorithms for constructing exact D–optimal designs. *Technometrics*, **22**, 315–324.

Cook, R. D. and Weisberg, S. (1980). Characterizations of an empirical influence function for detecting influential cases in regression. *Technometrics*, **22**, 495–508.

Cook, R. D. and Prescott, P. (1981). On the accuracy of Bonferroni significance levels for detecting outliers in linear models. *Technometrics*, **23**, 59–63.

Cook, R. D. and Johnson, M. E. (1981). A family of distributions for modeling non–elliptically symmetric multivariate data. *Journal of the Royal Statistical Society, Series B*, **43**, 210–218.

Cook, R. D. and Weisberg, S. (1982). Criticism and influence in regression. In *Sociological Methodology*, S. Leinhardt, ed., San Francisco: Jossey–Bass Publishers, 313–362.

Cook, R. D. and Nachtsheim, C. J. (1982). Model robust, linear–optimal designs. *Technometrics*, **24**, 49–52.

Cook, R. D., Holschuh, N. and Weisberg, S. (1982). A note on an alternative outlier model. *Journal of the Royal Statistical Society, Series B*, **44**, 370–376.

Cook, R. D. and Weisberg, S. (1983). Diagnostics for heteroscedasticity in regression. *Biometrika*, **70**, 1–10.

Chang, P., Cook, R. D. and Fisch R. (1983). Prognostic factors of the intellectual outcome of phenylketonurics: on and off diet. *Journal of Psychiatric Treatment and Evaluation*, **5**, 157–163.

Beckman, R. and Cook, R. D. (1983). Outliers . . . s (with discussion). *Technometrics*, **25**, 119–149.

Cook, R. D. and Wang, P. (1983). Transformations and influential cases in regression. *Technometrics*, **25** , 337–344.

Picard, R. and Cook, R. D. (1984). Cross–validation of regression models. *Journal of the American Statistical Association*, **79**, 575–583.

Noll, S., Waibel, P., Cook, R. D. and Witmer, J. (1984). Biopotency of methionine sources for young turkeys. *Journal of Poultry Science*, **63**, 2458–2470.

Cook, R. D. and Tsai, C. L. (1985). Residuals in nonlinear regression. *Biometrika*, **72**, 23–30.

Cook, R. D. and Witmer, J. (1985). A note on parameter–effects curvature. *Journal of the American Statistical Association*, **80**, 872–878.

Cook, R. D. and Johnson, M. E. (1986). Generalized Burr–Pareto–Logistic distributions with applications to a uranium exploration data set. *Technometrics*, **28**, 123–132.

Cook, R. D. and Goldberg, M. (1986). Curvatures for parameter subsets in nonlinear regression. *The Annals of Statistics*, **14**, 1399–1418.

Cook, R. D., Tsai, C. L. and Wei, B. C. (1986). Bias in nonlinear regression. *Biometrika*, **73**, 615–623.

Cook, R. D. (1986). Assessment of local influence (with discussion). *Journal of the Royal Statistical Society, Series B*, **48**, 133–169.

Cook, R. D. (1987). Parameter plots in nonlinear regression. *Biometrika*, **74**, 669–678.

Cook, R. D. (1987). Influence assessment. *Journal of Applied Statistics*, **14**, 117–131.

Beckman, R., Cook, R. D. and Nachtsheim, C. J. (1987). New diagnostic methods for mixed model analysis of variance. *Technometrics*, **29**, 413–426.

Cook, R. D., Peña, D. and Weisberg, S. (1988). The likelihood displacement: A unifying principle for influence measures. *Communications in Statistics, Theory and Methods*, **17**, 623-640.

Cook, R. D. and Weisberg, S. (1989). Regression diagnostics with dynamic graphics (with discussion). *Technometrics*, **31**, 277–311.

Cook, R. D. and Nachtsheim, C. J. (1989). Computer–aided blocking of factorial and response surface designs. *Technometrics*, **31**, 339–346.

Cook, R. D. and Thomas, W. (1989). Assessing influence on regression coefficients in generalized linear models. *Biometrika*, **76**, 741–750.

Cook, R. D. and Thomas, W. (1990). Assessing influence on predictions from generalized linear models. *Technometrics*, **32**, 59–66.

Cook, R. D. and Weisberg, S. (1990). Confidence curves in nonlinear regression. *Journal of the American Statistical Association*, **85**, 544–551.

Cook, R. D. and Tsai, C. L. (1990). Diagnostics for assessing the accuracy of normal approximations in exponential family nonlinear models. *Journal of the American Statistical Association*, **85**, 770–777.

Cook, R. D. and Weisberg, S. (1990). Linear and nonlinear regression: Design and analysis of experiments for comparing several dose–response curves. In *Statistical Methodology in the Pharmaceutical Sciences*, Berry, D. A., ed., New York: Dekker, 163–195.

Cook, R. D. and Weisberg, S. (1991). Added variable plots in linear regression. In Stahel, W. and Weisberg, S. (eds), *IMA Symposium on Robustness and Diagnostics*, Springer, 47–60.

Cook, R. D. and Weiss, R. (1992). A graphical case statistic for assessing posterior influence. *Biometrika*, **79**, 51–56.

Cook, R. D., Hawkins, D. and Weisberg, S. (1992). Comparison of model misspecification diagnostics using residuals from least mean of squares and least median of squares fits. *Journal of the American Statistical Association*, **87**, 419–424.

St. Laurent, R. and Cook, R. D. (1992). Leverage and superleverage in nonlinear regression. *Journal of the American Statistical Association*, **87**, 985–990.

Cook, R. D. (1992). Regression plotting based on quadratic predictors. In Dodge, Y. (ed), *L1-Statistical Analysis and Related Methods*, New York: North-Holland, 115–128.

Cook, R. D. (1992). Graphical regression. In Dodge, Y. and Whittaker, J. (eds), *Computational Statistics*, Vol 1, Heidelberg: Physica–Verlag, 11–22.

Cook, R. D., Hawkins, D. and Weisberg, S. (1992). Exact iterative computation of the robust multivariate minimum volume ellipsoid estimator. *Statistics & Probability Letters*, **16**, 213–218.

Cook, R. D. and Wong, W. K. (1993). Heteroscedastic G–optimal design. *Journal of the Royal Statistical Society, Ser B*, **55**, 871–880.

Cook, R. D. (1993). Exploring partial residual plots. *Technometrics*, **35**, 351–362.

St. Laurent, R. and Cook, R. D. (1993). Leverage, local influence and curvature in nonlinear regression. *Biometrika*, **80**, 99–106.

Cook, R. D. and Weisberg, S. (1993). Residual plots in up to four dimensions. *Journal of Statistical Planning and Inference*, **36**, 141–150.

Cook R. D. and Wetzel, N. (1993). Exploring regression structure with graphics (invited with discussion). *TEST*, **2**, 33-100.

Cook, R. D. and Weisberg, S. (1994). ARES plots in generalized linear models. *Computational Statistics and Data Analysis*, **17**, 303-315.

Cook, R. D. (1994). On the interpretation of regression plots. *Journal of the American Statistician Association*, **89**, 177-189.

Cook, R. D. and Nachtsheim, C. J. (1994). Re–weighting to achieve elliptically contoured covariates in regression. *Journal of the American Statistical Association*, **89**, 592-599.

Cook, R. D. and Wong, W. K. (1994). On the equivalence of constrained and compound optimal design. *Journal of the American Statistical Association*, **89**, 687-692.

Cook, R. D. and Weisberg, S. (1994). Transforming a response variable for linearity. *Biometrika*, **81**, 731-737.

Cook, R. D. and Fedorov, V. (1995). Constrained optimization of experimental design (invited with discussion). *Statistics*, **26**, 129–178.

Atkinson, A. C. and Cook, R. D. (1995). D–optimum designs for heteroscedastic linear models. *Journal of the American Statistical Association*, **90**, 204–212.

Cook, R. D. (1995). Graphics for studying the net effects of regression predictors. *Statistica Sinica*, **5**, 689–708.

Ibrahimy, A. and Cook, R. D. (1995). Regression design for one–dimensional subspaces. In Kitsos, C. P. and Müller, W. G. (Eds.), *Model Oriented Data Analysis*, New-York: Springer-Verlag, 125–134.

Cook, R. D. (1996). Graphics for regressions with a binary response. *Journal of the American Statistical Association*, **91**, 983–992.

Cook, R. D. (1996). Added-variable plots and curvature in linear regression. *Technometrics*, **38**, 275–278.

Atkinson, A. C. and Cook, R. D. (1997). Designing for a response transformation parameter. *Journal of the Royal Statistical Society, Series B* **59**, 111–124.

Cook, R. D. and Weisberg, S. (1997). Graphics for assessing the adequacy of regression models. *Journal of the American Statistical Association* **92**, 490–499.

Cook, R. D. and Bura, E. (1997). Testing the adequacy of regression functions. *Biometrika* **84**, 949–956.

Cook, R. D. (1998). Principal Hessian directions revisited (with discussion). *Journal of the American Statistical Association* **93**, 84–94.

Cook, R. D. and Croos-Dabrera, R. (1998). Partial residual plots in generalized linear models. *Journal of the American Statistical Association*, **93**, 730–793.

Cook, R. D. and Weisberg, S. (1999). Graphs in Statistical Analyses: Is the Medium the Message. *The American Statistician*, **53**, 29–37.

Cook, R. D. and Lee, H. (1999). Dimension reduction in binary response regression. *Journal of the American Statistical Association*, **94**, 1187–1200.

Cook, R. D. (2000). Detection of influential observations in linear regression. *Technometrics* **42**, 65–68. (Reprinting of a 1977 article for the *Special 40th Anniversary Issue*).

Cook, R. D. and Critchley, F. (2000). Detecting regression outliers and mixtures graphically. *Journal of American Statistical Association*, **95**, 781–794.

Cook, R. D. (2000). SAVE: A method for dimension reduction and graphics in regression. *Communications in Statistics: Theory Methods*, **29**, 2109–2121. (Invited paper for a special millennium issue on regression.)

Pardoe, I. and Cook, R. D. (2000). Sampling to assess the fit of regression models. *Physical and Engineering Sciences Newsletter*, **6**, 10–11.

Cook, R. D. and Yin, X. (2001). Dimension-reduction and visualization in discriminant analysis (Invited with discussion; subsequent award article). *Australia & New Zealand Journal of Statistics*, **43**, 147–200.

Bura, E. and Cook, R. D. (2001). Estimating the structural dimension of regressions via parametric inverse regression. *Journal of the Royal Statistical Society*, **63**, 393–410.

Bura, E. and Cook, R. D. (2001). Extending SIR: The weighted chi-square test. *Journal of the American Statistical Association,* **96**, 996–1003.

Cook, R. D. and Olive, D. (2001). A note on visualizing response transformations in regression. *Technometrics*, **43**, 443–449.

Chiaromonte, F. and Cook, R. D. (2002). Sufficient dimension reduction and graphics in regression. *Annals of the Institute of Statistical Mathematics*, **54**, 768–795.

Chiaromonte, F., Cook, R. D. and Li, B. (2002). Sufficient dimension reduction in regression with categorical predictors. *The Annals of Statistics*, **30**, 475–497.

Cook, R. D. and Li, B. (2002). Dimension reduction for the conditional mean in regression. *The Annals of Statistics*, **30**, 455–474.

Cook, R. D. and Yin, X. (2002). Asymptotic distributions for testing dimensionality in q-based pHd. *Statistics and Probability Letters*, **58**, 233–243.

Pardoe, I. and Cook, R. D. (2002). A graphical method for assessing the fit of a logistic regression model. *The American Statistician*, **56**, 263–272.

Yin, X. and Cook, R. D. (2002). Dimension reduction for the conditional kth moment in regression. *Journal of the Royal Statisticial Society*, **64**, 159–176.

Fan, D.F. and Cook, R. D. (2003). A differential equation model for predicting public opinions and behaviors from persuasive information: Application to the index of consumer sentiment. *Journal of Mathematical Sociology*, 27, 29–52.

Bura, E. and Cook, R. D. (2003). Assessing corrections to the weighted chi-squared test for dimension. *Communications in Statistics – Simulation and Computation*, **32**, 127–146.

Cook, R. D. (2003). Dimension reduction and graphical exploration in regression (Invited paper). *Statistics in Medicine*, **22**, 1399–1413.

Li, B., Cook, R. D. and Chiaromonte, F. (2003). Dimension reduction for the conditional mean in regressions with categorical predictors. *The Annals of Statistics*, **31**, 1636–1668.

Cook, R. D. and Setodji, M. (2003). A model-free test for reduced rank in multivariate regression. *Journal of the American Statistical Association*, **98**, 340–351.

Bura, E. and Cook, R. D. (2003). Rank estimation in reduced rank regression. *Journal of Multivariate Analysis*, **87**, 159–176.

Yin, X. and Cook, R. D. (2003). Estimating central subspaces via inverse third moments. *Biometrika*, **90**, 113-125.

Cook, R. D. (2004). Testing predictor contributions in sufficient dimension reduction. *Annals of Statistics,* **32**, 1062–1092.

Cook, R. D. and Yin, X. (2004). Asymptotic distribution of the test statistic for covariance dimension reduction methods in regression. *Statistics and Probability Letters*, **68**, 421–427.

Cook, R. D. and Weisberg, S. (2004). Partial one-dimensional regression models. *The American Statistician*, **58**, 102–109.

Li, L., Cook, R. D. and Nachtsheim, C.J. (2004). Cluster-based estimation for sufficient dimension reduction. *Computational Statistics & Data Analysis,* **47**, 175-193.

Setodji, C. and Cook, R. D. (2004). K-means inverse regression. *Technometrics,* **46**, 421–429.

Yin, X. and Cook, R. D. (2004). Dimension reduction via marginal fourth moments in regression. *Journal of Computational and Graphical Statistics,* **13**, 554–570.

Cook, R. D. and Li, B. (2004). Determining the dimension of iterative Hessian transformation. *Annals of Statistics,* **32**, 2501–2531.

Setodji, C. and Cook, R. D. (2004). K-means inverse regression. *Technometrics,* **46**, 421–429.

Yin, X. and Cook, R. D. (2005). Direction estimation in single-index regressions. *Biometrika*, **92**, 371-384.

Ni, L., Cook, R. D. and Tsai, C-L. (2005). A note on shrinkage sliced inverse regression, *Biometrika*, **92**, 242-247.

Cook, R. D. and Ni, L. (2005). Sufficient dimesion reduction via inverse regression: A minimum discrepancy approach. *Journal of the American Statistical Association*, **100**, 410-428.

Li, L., Cook, R. D. and Nachtsheim, C.J. (2005). Model free variable selection, *Journal of the Royal Statistical Society, Ser. B*, **67**, 285-300.

Cook, R. D. and Ni, L. (2006). Using intraslice covariances for improved estimation of the central subspace in regression. *Biometrika,* **93**, 65-74.

Yin, X. and Cook, R. D. (2006). Dimension reduction via marginal high moments in regression. *Statistics & Probability Letters,***76**, 393-400.

Ni, L. and Cook, R. D. (2006). Sufficient dimension reduction in regressions across heterogeneous subpopulations. *Journal of the Royal Statistical Society, ser B*, **68**, 89–107.

Telias, A. Hoover, E., Rosen, C., Bedford, D. and Cook, R. D. (2006). The effect of calcium sprays and fruit thinning on bitter pit incidence and calcium content in 'honeycrisp' apple. *Journal of Plant Nutrition*, **29**, 1941–1957.

Dyer, A. T., Windels, C. E., Cook, R. D. and Leonard, K. J. (2007). Survival Dynamics of Aphanomyces cochlioides Oospores Exposed to Heat Stress. *Phytopathology*, **97**, 484-491.

Cook, R. D. (2007). Fisher lecture: Dimension reduction in regression (with discussion). *Statistical Science,* **22**, 1–26.

Cook, R. D., Li, B. and Chiaromonte, F. (2007). Dimension reduction in regression without matrix inversion. *Biometrika*, **94**, 569–584.

Cook, R. D. and Ni, L. (2007). Elevated soil lead: Statistical modeling and apportionment of contributions from lead-based paint and leaded gasoline. *The Annals of Applied Statistics*, **1**, 130–151.

Forzani, L. and Cook, R. D. (2007). A note on smoothed functional inverse regression. *Statistica Sinica*, **17**, 1677–1681.

Li, L. Cook, R. D. and Tsai, L. (2007). A note on partial inverse regression. *Biometrika*, **94**, 615–626.

Ni, L. and Cook, R. D. (2007). A robust inverse regression estimator. *Statistics and Probability Letters,* **77**, 343–349.

Pardoe, I. and Cook, R. D. (2007). A graphical method for assessing the fit of regression variance functions. *Australian & New Zealand Jornal of Statistics*, **49**, 241–250.

Pardoe, I., Yin, X. and Cook, R. D. (2007). Graphical tools for quadratic discriminant analysis. *Technometrics*, **49**, 172–183.

Shao, Y., Cook, R. D. and Weisberg, S. (2007). Marginal tests with sliced average variance estimation. *Biometrika,* **94**, 285–296.

Wen, X. and Cook, R. D. (2007). Optimal sufficient dimension reduction in regressions with categorical predictors. *Journal of Statistical Planning and Inference*, **137**, 1961–1978.

Yoo, P. and Cook, R. D. (2007). Optimal sufficient dimension reduction for the conditional mean in multivariate regressions. *Biometrika*, **94**, 231–242.

Yoo, P. and Cook, R. D. (2008). Response dimension reduction for the conditional mean in multivariate regression. *Computational Statistics and Data Analysis*, **53**, 334-343.

Yin, X., Li, B. and Cook, R. D. (2008). Successive direction extraction for estimating the central subspace in a multiple-index regression. *Journal of Multivariate Analysis*, **99**, 1733-1757.

Cook, R. D. and Forzani, L. (2008). Covariance reducing models: An alternative to spectral modeling of covariance matices. *Biometrika*, **95**, 799–812.

Shao, Y., Cook, R. D. and Weisberg, S. (2008). Partial central subspace and sliced average variance estimation. *Journal of Statistical Planning and Inference*, **139**, 952–961.

Wen, X. and Cook, R. D. (2008). New approaches to model-free dimension reduction for bivariate regression. *Journal of Statistical Planning and Inference*, **139**, 734–748.

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Cook, R. D. and Li. L. (2009). Dimension reduction in regressions with exponential family predictors. *Journal of Computational and Graphical Statistics*, **18**, 774–791.

Cook, R. D. and Forzani, L. (2009). Principal fitted components for dimension reduction in regression. *Statistical Science*, **485**, 485–501.

Cook, R. D. and Forzani, L. (2009). Likelihood-based sufficient dimension reduction. *Journal of the American Statistical Association*, **104**, 197–208.

Cook, R. D., Forzani, L. and Yao, A.F. (2009). Necessary and sufficient conditions for consistency of a method for smoothed functional inverse regression. *Statistica Sinica*, **20**, 235–238.

Cook, R. D., Li, B. and Chiaromonte, F. (2010). Envelope models for parsimonious and efficient multivariate linear regression (with discussion). *Statistica Sinica*, **20**, 927–1010.

Chen, X. and Cook, R. D. (2010). Some insights into continuum regression and its asymptotic properties. *Biometrika*, **97**, 985–990.

Chen, X., Zou, F. and Cook, R. D. (2010). Coordinate-independent sparse sufficient dimension reduction and variable selection. *Annals of Statistics*, **38**, 3696–3723.

Su, Z. and Cook, R. D. (2011). Partial envelopes for efficient estimation in multivariate linear regression. *Biometrika*, **98**, 133-146.

Cook, R. D., Forzani, L. and Tomassi, D. (2011). LDR: a Matlab package for likelihood-based sufficient dimension reduction. *Journal of Statistical Software*, **39**, issue 3.

Cook, R. D. and Forzani, L. (2011). Mean and variance of the generalized inverse of a singular Wishart matrix. *Electronic Journal of Statistics*, **5**, 146–158.

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Cook, R. D. and Su, Z. (2013). Scaled envelopes: Scale invariant and efficient estimation in multivariate linear regression. *Biometrika*, **100**, 939–954.

Cook, R. D., Forzani, L. and Rothman, A. (2013). Prediction in abundant high-dimensional linear regression. *Electronic Journal of Statistics*, **7**, 3059–3088.

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Cook, R. D., Forzani, L. and Su, Z. (2016). A note on fast envelope estimation. *Journal of Multivariate Analysis*, **150**, 42–54.

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Liu, L., Li, W., Su, Z., Cook, R. D., Vizioli, L., Yacoub, E. Efficiency Boosting via Envelope Chain in fMRI Studies. Submitted.

Errore, A., Cook, R. D. and Nachtsheim, C. Main Effects Designs for Logistic Regression that are Robust to the Presence of Two-factor Interactions. Submitted

Book Reviews

Standard Statistical Calculations, 2nd edition by G. P. Moore, E. A. Shirley and D. E. Edwards, *Journal of the American Statistical Association*, **69**, 832-833 (1974).

A Manual of Sampling Techniques by R. K. Som, *The Quarterly Review of Biology*, 234-235, (June 1975).

Statistical Computation by J. H. Maindonald, *American Scientist*, **73**, 396 (1985).

The Statistics of Natural Selection by B. Manly, *Journal of the American Statistical Association*, **82**, 1188–1189 (1987).

MacSpin by D2 Software, Inc., *The American Statistician*, **41**, 233–236 (1987).

Statistical Theory and Modeling, In Honor of Sir David Cox, FRS by D. V. Hinkley, N. Reid and E. J. Snell (eds), *Journal of the American Statistical Association*, **88**, 710 (1993).

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Refereed Discussions, Reviews, Reflections and Letters to the Editor

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Cook, R. D. and Holschuh, N. (1979). Discussion of "Field experimentation in weather modification" by R. R. Braham, Jr. *Journal of the American Statistical Association*, **74**, 68–70.

Cook, R. D. (1982). Discussion of "Regression diagnostics, transformations and constructed variables" by A. C. Atkinson. *Journal of the Royal Statistical Society, Series B*, 28.

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Cook, R. D. (1983). Discussion of "Demeaning conditioning diagnostics through centering" by D. Belsley. *The American Statistician*, **38**, 78–79.

Cook, R. D. (1986). Discussion of "Influential observations, high leverage points, and outliers in linear regression" by S. Chatterjee and A. S. Hadi. *Statistical Science*, **1**, 393–397.

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Cook, R. D. (1988). Discussion of "Combining robust and traditional least squares methods: A critical evaluation" by M. A. Janson. *Journal of Business and Economic Statistics*, **8**.

Cook, R. D. (1989). Discussion of "Leave–k–out diagnostics for time series" by A. G. Bruce and R. D. Martin, *Journal of the Royal Statistical Society, Series B*, 410–411.

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Cook, R. D. and Hawkins, D. (1990). Discussion of "Unmasking multivariate outliers" by P. J. Rousseeuw and B. C. van Zomeren, *Journal of the American Statistical Association*, **85**, 640–644.

Cook, R. D. and Weisberg, S. (1991). "Sliced inverse regression for dimension reduction" by K. C. Li, *Journal of the American Statistical Association*, **86**, 328–332.

Cook, R. D. (1998). Rejoinder to K.C. Li's comments on "Principal Hessian directions revisited". *Journal of the American Statistical Association*, **93**, 98–100.

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Cook, R. D. (2014). Reflections on a career in statistics and their implications. In *Past, Present, and Future of Statistical Science*, X. Lin, et. al, (ads), CRC Press. (This book contains invited essays from past winners of awards from the Committee of Presidents of Statistical Societies. These awards are the most prestigious in statistics.)

Ding, S. and Cook, R. D. (2015). Higher-order sliced inverse regression. *Wiley Interdisciplinary Reviews: Computational Statistics.* **7**, 249–257. Doi: 10.1002/wics.1354

Cook, R. D. and Nachtsheim, C. J. (2015). Discussion of "The case against normal plots of effects by R. V. Lenth." *Journal of Quality Technology* **47**, 98.

Cook, R. D., Forzani, L., and Rothman, A. J. (2015). "Letter to the Editor: Comment on a paper by Tarpey, et al." *The American Statistician* **69**, 253–254.

Cook, R. D. (2018) Principal Components, Sufficient Dimension Reduction and Envelopes. *Annual Review of Statistics and Its Application*, Volume 5, 533–559. DOI: 10.1146/annurev-statistics-031017-100257

Cook, R. D. (2019). Envelope methods. *WIREs Computational Statistics*, https://onlinelibrary.wiley.com/doi/abs/10.1002/wics.1484

Selected Technical Reports and Proceedings Papers

Cook, R. D. (1999). Graphical detection of regression outliers and mixtures. Proceedings of the International Statistical Institute 1999. Helsinki: ISI.

Cook, R. D. (1999). Regression Graphics. *Proceedings of the 1998 Interface Meetings*. Washington: American Statistical Association.

Cook, R. D. (1994). Using dimension-reduction subspaces to identify important inputs in models of physical systems. *1994 Proceedings of the Section on Physical and Engineering Sciences of the American Statistical Association*, 18-25.

Cook, R. D., Musser, B. and Weisberg, S. (1994). Teacher's manual for *An Introduction to Regression Graphics* by R. D. Cook and S. Weisberg. Technical Report, School of Statistics, University of Minnesota.

Wetzel, N., Cook, R. D. and Weisberg, S. (1993). Nonlinear regression using the *R-code*. Technical Report No. 590, School of Statistics, University of Minnesota.

Cook, R. D. and Weisberg, S. (1991). Dynamic graphics and regression diagnostics using XLISP-STAT. Technical Report No. 565, School of Statistics, University of Minnesota.

Cook, R. D. and Weisberg, S. (1989). Three dimensional residual plots. In Berk, K. and Malone, L. (eds), *Proceedings of the 21st Symposium on the Interface*, 162–166.

Cook, R. D. and Weisberg, S. (1987). Regression diagnostics using dynamic graphics. *Proceedings, Statistical Computing Section, American Statistical Association*, 1987, 1-5.

Cook, R. D., Huang, J., Thibodeau, L. and Weisberg, S. (1984). TWEDA Users' Manual, Version 2.0, Technical Report No. 457, School of Statistics, University of Minnesota.

Siniff, D.B., Tester, J. R., Cook, R.D. and McMahon, G.L. (1982). Wild horse survival and foaling rates. *U.S. Department of Interior - Bureau of Land Management Division of wild Horses and Burros*.
http://archive.org/stream/wildhorsesurviva19sini/wildhorsesurviva19sini_djvu.txt.

Cook, R. D. and Weisberg, S. (1982). Influential cases and transformations. *Proceedings, SAS Users' Group International Conference*, 574-579.

Cook, R. D. and Weisberg, S. (1980). Influence measures for robust regression. Technical Report No. 384, School of Statistics, University of Minnesota.

Beckman, R. J. and Cook, R. D. (1980). Using M-estimators to identify outliers. Los Alamos Scientific Laboratory Technical Report (Group S-1).

Cook, R. D. and Weisberg, S. (1979). Finding influential cases in linear regression–A review. Technical Report No. 338, School of Statistics, University of Minnesota.

Cook, R. D. and Weisberg, S. (1978). Characterizing extrapolations in linear regression. Technical Report No. 330, School of Statistics, University of Minnesota.

Cook, R. D. and Holschuh, N. (1978). Statistical design for evaluating cloud seeding in Minnesota. Technical Report No. 309, School of Statistics, University of Minnesota.

Bingham, C., Cook, R. D. and Weisberg (1978). A mean squared error criterion for subset selection. Technical Report No. 308, School of Statistics, University of Minnesota.

Cook, R. D. and Thibodeau, L. (1977). Outlier resistant designs–foundations. Technical Report No. 290, School of Statistics, University of Minnesota.

Cook, R. D. (1977). On model robust design for polynomial regression. Technical Report No. 281, School of Statistics, University of Minnesota.

Cook, R. D. and Weisberg, S. (1975). Missing values in unreplicated orthogonal designs. Technical Report No. 253, School of Statistics, University of Minnesota.

Cook, R. D. and Larntz, L. (1973). Sample size determination for fixed-effect ANOVA models. Technical Report No. 212, School of Statistics, University of Minnesota.

Publicly Available Computer Programs

- Arc – an instructional program for regression and graphics. Available at http://www.stat.umn.edu/arc.
- LAD – a Matlab package for sufficient dimension reduction methods that require optimization over Grassmann manifolds. Available at http://sites.google.com/site/lilianaforzani/ldr-package.
- GrassmannOptim: An R package for grassmann manifold optimization. Available at http://www.jstatsoft.org/v50/i05.
- envlp: A Matlab package for envelop models and methods. Available at https://github.com/emeryyi/envlp

Intramural Teaching

Undergraduate and graduate courses in statistics.
Graduate advanced topics courses in

- Population genetics
- Optimal experimental design
- Nonlinear models
- Statistical diagnostics
- Statistical graphics
- Dimension reduction

Ph.D. Supervisions

- Thibodeau, L.A. , Statistics, 1977, *Robust Design for Regression Problems*
- Nachtsheim, C.J., Operations Research, 1979, *Optimal Experimental Design*
- Pickard, R.R., Statistics, 1981, *On the Assessment of the Predictive Ability of Linear Regression Models*
- Wang, P.C., Statistics, 1982, *Diagnostics in Regression Models*
- Tsai, C.L., Statistics, 1983, *Contributions to the Design and Analysis of Non-Linear Models*
- Thomas, W.J., Statistics, 1987, *Influence Diagnostics for Generalized Linear Models*
- Lavine, M., Statistics, 1987, *Prior Influence in Bayesian Statsitics*
- St. Laurent, R.T., Statistics, 1988, *Detecting Curvature in the Response in Regression*
- Weiss, R.E., Statistics, 1989, *A Bayesian Graphical Statistic for Case Influence Assessment*
- Wong, W.K., Statistics, 1990, *Heteroscedastic Optimal Designs*

- Ibrahimy, A. Institute Agronomique et Veterinaire Hassan II, Morocco, 1993, *Conribution to Data Analysis and Design of Experiments in a Response Surface Context*
- Croos-Dabrera, R.V., Statistics, 1994, *Graphical Analysis of Curvature in Semiparametric Generalized Linear Models*
- Bura, E., Statistics, 1996, *Dimension Reduction via Inverse Regression*
- Chiaromonte, F., Statistics, 1996, *A Reduction Paradigm for Multivariate Laws*
- Lee, H., Statistics, 1998, *Dimension Reduction in Binary Response Regression*
- Yin, X., Statistics, 2000, *Dimension Reduction using Inverse Third and Centeral k-th Moment Subspaces*
- Pardoe, I.B., Statistics, 2001, *A Bayesian Approach to Regression Diagnostics*
- Setodji, M. Statistics, 2003, *Multivariate Dimension Reduction and Graphics*
- Ni, L. Statistics, 2003, *Dimension Reduction with Inverse Regression: A Minimum Discrepancy Approach*
- Li, L. Statistics, 2003, *Sufficient Dimension Reduction in High-Dimensional Data*
- Yoo, P., Statistics, 2005, *Optimal Sufficient Dimension Reduction for the Multivariate Conditional Mean in Multivariate Regression.*
- Wen, M., Statistics, 2005, *Dimension Reduction for Regressions with Categorical Variables.*
- Shao, Y., Statistics, 2007, *Topics in Dimension Reduction.*
- Forzani, L., Statistics, 2007, *Sufficient Dimension Reduction based on Normal and Wishart Inverse Models.*
- Adragni, K., Statistics, 2009, *Dimension Reduction and Prediction in Large p Regressions.*
- Xin Chen, Statistics, 2010, *Sufficient Dimension Reduction and Variable Selection.*
- Do Hyang Kim, Statistics, 2011, *Partial Sufficient Dimension Reduction in Regression.*
- Zhihua Su, 2012, *Envelope Models and Methods.*
- Xin Zhang, 2013, *Envelopes for Efficient Multivariate Parameter Estimation.*
- Shanshan Ding, 2014, *Sufficient Dimension Reduction for Complex Data Structures.*
- Daniel Eck, 2017, *Statistical Inference in Multivariate Settings*

Master's Supervisions

- Wang, S.J., 1975
- Johnson, J.W., 1982
- Ribic, C.A., 1983
- Schultheis, M.A., 1983
- Ting, H., 1983
- Eickhoff, C., 1993
- Harring, J. R., 2004
- Jia Liu, 2010
- Albrecht, M. C., 2012
- Whited, B. 2016

Professional Activities

Editorial Activities

Associate Editor, Committee on Mathematical Tables of the Institute of Mathematical Statistics, 1977–1982.

Associate Editor, *Journal of the American Statistical Association*, 1976–1982, 1988–1991, and 2002-2005.

Editorial Board, *Journal of Quality Technology*, 1988-1990.

Editor, *Special Topics Index on Linear Models*, American Statistical Association, 1988–1990.

Foreign Representative, Stochastic and Complex Systems Panel of the United Kingdom Science and Engineering Research Council, 1990.

Associate Editor, *Biometrika*, 1991–1993.

Associate Editor, *Journal of the Royal Statistical Society, Series B*, 1992–1997.

Advisory Board, *Student*, 1993–present.

Associate Editor, *Statistica Sinica*, 1999-2005.

Invited Lecture Series and Short Courses

Department of Mathematics, University of Texas at Austin, April 1984: Series of six linked lectures on statistical diagnostics

Fourth Triennial Sheffield Conference, U.K., April 1986: Series of three linked lectures on influence assessment

Department of Mathematics, Nanjing Institute of Technology, People's Republic of China, October 1986: Series of 12 linked lectures on statistical diagnostics.

Department of Statistics, Wuhan University, People's Republic of China, October 1986: Series of three linked lectures on statistical diagnostics.

University of Witwatersrand, November 1987: Short course on regression diagnostics sponsored by the South African Statistical Association.

Center for Mathematical Research, University of Montreal, May 1990: Series of three linked lectures on regression diagnostics.

University of Waikato, New Zealand, March 1991: Short course on regression graphics.

Statistics Group, Los Alamos National Laboratory, April 1991: Short course on regression graphics.

Southern California Chapter of the American Statistical Association, May 1991: Short course on regression graphics.

International Biometrics Conference, Hamilton, New Zealand, December 1992: Short course on regression graphics.

Seoul National University, Korea, February 1993: Short course on regression diagnostics and graphics during a conference sponsored by the Korean Statistical Association in honor of my past research contributions.

Departamento de Estadistica y Econometria, Uinverdidad Carlos II Madrid, April 1993: Series of six linked lectures on regression graphics.

Department of Statistics, University of Birmingham, U.K., April 1994: Short course on regression graphics.

University of Hong Kong, June 1994: Short course on regression graphics.

Annual Conference on Applied Statistics, Atlantic City, December 1994: Short course on regression graphics (with S. Weisberg).

Meetings of the Brazilian Statistical Association, Brazil, February 1995: Two-day short course on regression graphics.

Annual Winter Conference at Hemavan, Sweden, March 10–15, 1995: Four-day short course on regression graphics.

Annual meetings of the American Statistical Association, August 1996: One-day short course on regression graphics (with S. Weisberg).

Annual USSES meetings, half-day short course on regression graphics, July 1997.

Annual meetings of the American Statistical Association, August 1997: One-day short course on regression graphics (with S. Weisberg).

"Reinventing Regression thru Graphics." One-day short course with S. Weisberg sponsored by ASA's LearnStat program, March 1998.

"Regression Graphics: Ideas for studying regressions thru graphicss," One-day short course at the Annual meeting of the American Statistical Association, August 1999.

"Regression Graphics." One-day short course delivered at the invitation of the Princeton Chapter of the ASA, October 1999.

"Regression Graphics." One and one-half day invited short course delivered at a CSCAR conference, University of Michigan, May 1999.

"Reinventing Regression thru Graphics." One-day shortcourse organized as a satellite to the 52nd ISI meetings, Tampere, Finland (with S. Weisberg), August, 1999.

"Regression Graphics." Fifteen-hour short course at Department of Statistics, Penn State University, February 1999.

"Regression Graphics via Dimension Reduction," One-day workshop, Southern California Chapter of the American Statistical Association, May 2001.

"Graphics and Dimension reduction," Short course, Research School of Finance, Actuarial Studies and Applied Statistics, University of Canberra, Australia, December 2012.

Societies

American Statistical Association:

- Statistical Computing Section
- Chair of the Section on Statistical Graphics, 1991

International Statistical Institute
Institute of Mathematical Statistics:

- Visiting Lecturer Program

- Council Member, 1996–1999

Biometric Society
Fellow, Royal Statistical Society
Society of the Sigma Xi.

Funded Research

"Sufficient Dimension Reduction of High-dimensional Data through Regularized Covariance Estimation," National Science Foundation (DMS), 2010-2013, Co-Principal Investigator, ($190,000)

"Envelope Models and Methods for Efficient Multivariate Analysis with Applications to Tissue Engineering," National Science Foundation (DMS), 2012-2014, Principal Investigator, ($309,000).

"Systems Biology Approach to Optimize Tissue Growth in Vitro. PI: R. Tranquillo," National Institutes of Health, 2010-2012. Investigator, ($ 200,00).

"Model-Based and Model-Free Dimension Reduction with Application to Bioinformatics," National Science Foundation (DMS), 2007-2010, Principal Investigator, ($185,000).

"Sufficient Dimension Reduction for High Dimensional Data with Applications in Bioinformatics," National Science Foundation (DMS), 2004-2007, Principal Investigator, ($264,275).

"Foundations of Dimension Reduction and Graphics," National Science Foundation (DMS), 2002-2004, Principal Investigator ($275,000).

"Foundations of Regression Grapics," National Science Foundation (DMS), 1997–2001, Principal Investigator ($130,000).

"Course and Curriculum Development for Regression," National Science Foundation Division of Undergraduate Education, 1997–1999. Co-principal Investigator ($130,000).

"Graphical Paradigms for Teaching and Using Statistics," National Science Foundation Division of Undergraduate Education, 1994–1997, Co-principal Investigator ($205,000).

"Statistical Graphics: Foundations of Regression Graphics," National Science Foundation (DMS), 1992–1995, Principal Investigator ($120,000).

"Statistical Graphics", National Science Foundation, 1990-1992, Co-principal Investigator ($140,000).

Scientific Computing Equipment for the Mathematical Sciences Equipment Grant, National Science Foundation, 1990, Investigator ($40,000 + matching funds).

"Statistical Graphics", National Science Foundation, 1988-90, Co-principal Investigator ($150,000).

"Diagnostic Methods and Robust Procedures", National Science Foundation, 1986–1988, Co-principal Investigator ($100,000).

"Methionine Requirements and Bioassay in Turkey Nutrition", Monsanto Company, 1983–1986, Investigator.

"Census Methods for Wild Horses and Burros", U.S. Department of the Interior, 1980–1983, Investigator.

"Statistical Case Analysis", National Institutes of Health, 1978-80, Co-principal Investigator ($80,000).

Selected Extramural Consulting

Interdisciplinary Systems Ltd, Winnipeg
Monsanto Industrial Chemicals Co., St. Louis
Minnesota Attorney General's Office
AccuMed, New Brighton, MN
BBN Software
Galton and Helm, Attorneys, Los Angeles
Midwest Importers, Inc., Cannon Falls, MN
GMIS, Malvern, PA
Anoka County, MN
Ethyl Corporation
Dorsey and Whitney, Law Offices, Minneapolis

Projects in Progress

Monograph with Liliana Forzani on Partial Least Squares Regression