

Professor Bernard Walter Silverman FRS

H-indices: Google Scholar 59; Web of Science (does not include books) 38.

Publications

Books: authored

- 1986 *Density Estimation for Statistics and Data Analysis*. London: Chapman and Hall.
- 1994 (with P. J. Green) *Nonparametric Regression and Generalized Linear Models: A Roughness Penalty Approach*. London: Chapman and Hall.
- 1997 (with J. O. Ramsay) *Functional Data Analysis*. New York: Springer.
- 2002 (with J. O. Ramsay) *Applied Functional Data Analysis: Methods and Case Studies*. New York: Springer.
- 2005 (with J. O. Ramsay) *Functional Data Analysis, Second Edition*. (Revised and considerably extended). New York: Springer.

Books: edited

- 1989 (with G. A. Barnard, G. E. P. Box, D. R. Cox, and A. H. Seheult). *Industrial Quality and Productivity with Statistical Methods: A Joint Symposium of the Royal Society and the Royal Statistical Society*. London: The Royal Society. (Also published as *Phil. Trans. R. Soc. Lond. A*, **327**, 477–638.)
- 2000 (with J. C. Vassilicos). *Wavelets: The Key to Intermittent Information?*. Oxford University Press. (Also published as *Phil. Trans. R. Soc. Lond. A*, **357**, 2393–2625.)

Major published reports

- 2003 *GM Science Review: First Report*. Department of Trade and Industry, 296 pp.¹
- 2004 *GM Science Review: Second Report*. Department of Trade and Industry, 116 pp.¹⁰
- 2007 *The UK's Science and Mathematics Teaching Workforce: a 'State of the Nation' Report*. The Royal Society, 109pp.²
- 2008 *Science and mathematics education, 14–19: A 'state of the nation' report on the participation and attainment of 14–19 year olds in science and mathematics in the UK, 1996–2007*. The Royal Society, 199pp.¹¹
- 2011 *Research and Development in Forensic Science: a Review*³. Home Office.

Refereed journal publications

1. On a Gaussian process related to multivariate probability density estimation. *Math. Proc. Camb. Phil. Soc.*, **80**, 135–144. (1976).

¹ Jointly authored: I took a lead role in drafting the summary versions.

² Authored by a Royal Society Working Group; see <http://royalsociety.org/education/policy/state-of-nation/>

³ <http://www.homeoffice.gov.uk/publications/agencies-public-bodies/fsr/forensic-science-review/>

2. Limit theorems for dissociated random variables. *Adv. Appl. Prob.*, **8**, 806–819. (1976).
3. Weak and strong uniform consistency of the kernel estimate of a density and its derivatives. *Ann. Statist.*, **6**, 177–184. (1978).
4. Density ratios, empirical likelihood and cot death. *Applied Statistics*, **27**, 26–33. (1978).
5. Choosing a window width when estimating a density. *Biometrika*, **65**, 1–11. (1978).
6. Distances on circles, toruses and spheres. *J. Appl. Prob.*, **15**, 136–143. (1978).
7. (with T.C. Brown). Short distances, flat triangles and Poisson limits. *J. Appl. Prob.*, **15**, 815–825. (1978).
8. (with F.J. Guild). The microstructure of glass fibre reinforced polyester. *Journal of Microscopy*, **114**, 131–141. (1978).
9. (with B.D. Ripley). Quick tests for spatial interaction. *Biometrika*, **65**, 641–2. (1978).
10. (with T.C. Brown). Rates of Poisson convergence for U statistics. *J. Appl. Prob.*, **16**, 428–432. (1979).
11. (with C.Y. Barlow and others). Grain to grain variations in NbC particle size in an austenitic stainless steel. *Journal of Materials Science*, **14**, 423–430. (1979).
12. (with P.J. Green). Constructing the convex hull of a set of points in the plane. *Computer Journal*, **22**, 262–266. (1979).
13. (with P.J.L. Wallis). Efficient implementation of the Ada overloading rules. *Information Processing Letters*, **10**, 120–123. (1980).
14. Some asymptotic properties of the probabilistic teacher. *IEEE Trans. Inf. Theory*, **26**, 246–249. (1980).
15. (with D.M. Titterington). Minimum covering ellipses. *SIAM J. Sci. Stat. Comp.*, **1**, 401–409. (1981).
16. Using kernel density estimates to investigate multimodality. *J. Roy. Statist. Soc. B*, **43**, 97–99. (1981).
17. (with H.W. Lotwick). Convergence of spatial birth-and-death processes. *Math. Proc. Camb. Phil. Soc.*, **90**, 155–165. (1981).
18. (with T.C. Brown and R.K. Milne). A class of two-type point processes. *Z. Wahrscheinlichkeitsth. verw. Geb.*, **58**, 299–308. (1981).
19. Kernel density estimation using the fast Fourier transform. Algorithm AS176, *Appl. Stat.*, **31**, 93–99. (1982).
20. (with M.H.J. Keenan and A.H. Rose). Effect of plasma-membrane phospholipid unsaturation of solute transport into *Saccharomyces cerevisiae* NCYC 366. *J. Gen. Microbiol.*, **128**, 1447–1455. (1982).
21. (with A. Wheals). Unstable activator model for size control of the cell cycle. *J. Theor. Biol.*, **97**, 505–510. (1982).
22. On the estimation of a probability density function by the maximum penalized likelihood method. *Ann. Statist.*, **10**, 795–810. (1982).
23. (with H.W. Lotwick). Methods for analysing spatial processes of several types of points. *J. Roy. Statist. Soc. B*, **44**, 406–413. (1982).
24. (with Y.P. Mack). Weak and strong uniform consistency of kernel regression estimates. *Z. Wahrscheinlichkeitsth. verw. Geb.*, **61**, 405–415. (1982).

25. Convergence of a class of empirical distribution functions of dependent random variables. *Ann. Probab.*, **11**, 745–751. (1983).
26. Spline smoothing: the equivalent variable kernel method. *Ann. Statist.*, **12**, 898–916. (1984).
27. A fast and efficient cross-validation method for smoothing parameter choice in spline regression. *J. Amer. Statist. Ass.*, **79**, 584–589. (1984).
28. (with A.J. Baddeley). A cautionary example on the use of second-order methods for analysing point patterns. *Biometrics*, **40**, 1089–1093. (1984).
29. Some aspects of the spline smoothing approach to non-parametric regression curve fitting (with Discussion). *J. Roy. Statist. Soc. B.*, **47**, 1–52. (1985).
30. Two books on density estimation. *Ann. Statist.*, **13**, 1630–1638. (1985).
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32. (with J.T. Wood). The nonparametric estimation of branching curves. *J. Amer. Statist. Ass.*, **82**, 551–558. (1987).
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35. (with J.H. Friedman). Flexible parsimonious smoothing and additive modeling (with Discussion and Response). *Technometrics*, **31**, 1–39. (1989).
36. (with M. C. Jones). An orthogonal series density estimation approach to reconstructing positron emission tomography images. *Journal of Applied Statistics*, **16**, 177–191. (1989).
37. (with M. C. Jones). E. Fix and J. L. Hodges (1951): an important unpublished contribution to nonparametric discriminant analysis and density estimation. *International Statistical Review*, **57**, 233–247. (1989).
38. (with M. C. Jones, J. D. Wilson and D. W. Nychka). A smoothed EM approach to indirect estimation problems, with particular reference to stereology and emission tomography (with Discussion). *J. Roy. Statist. Soc. B.*, **52**, 271–324. (1990).
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46. (with D. A. Cook, P. McCombie and D. Rattray) The measurement and checking of the accuracy of small strain measurements during testing of model brick walls. *Masonry International: Journal of the British Masonry Society*, **6**, 82–88. (1993).
47. (with S. E. Leurgans and R. A. Moyeed). Canonical correlation analysis when the data are curves. *J. Roy. Statist. Soc. B.*, **55**, 725–740. (1993).
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51. (with G. P. Nason) The discrete wavelet transform in S. *J. Comp. Graph. Stat.*, **3**, 163–191. (1994).
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57. (with I. M. Johnstone) Wavelet threshold estimators for data with correlated noise. (1997). *J. Roy. Statist. Soc. B.*, **59**, 319–351.
58. (with J. O. Ramsay and N. Heckman) Spline smoothing with model-based penalties. *Behavior Research Methods, Instruments, and Computers*, **29**, 99–106. (1997).
59. (with F. Abramovich) Wavelet decomposition approaches to statistical inverse problems. *Biometrika*, **85**, 115–129. (1998).
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62. (with J. O. Ramsay) The progesterone data: will simpler functional data analyses suffice? *J. Amer. Statist. Assoc.*, **93**, 988–990. (1998).
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66. (with G. E. Williams, A. M. Wilson and A. E. Goodship) Disease-specific changes in equine ground reaction force data documented by use of principal components analysis. *American Journal of Veterinary Research*, **60**, 549–555. (1999).
67. Wavelets in statistics: beyond the standard assumptions. *Phil. Trans. R. Soc. Lond. A* **357**, 2459–2473 (1999)
68. (with F. Abramovich and T. Sapatinas) Stochastic expansions in an overcomplete wavelet dictionary. *Probability Theory and Related Fields*, **117**, 133–144. (2000).
69. (with A. Kovac) Extending the scope of wavelet regression methods by coefficient-dependent thresholding. *J. Amer. Statist. Assoc.*, **95**, 172–183. (2000).
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71. (with L. Shepstone, J. Rogers, J. R. Kirwan) The distribution of distal femoral osteophytes in a human skeletal population. *Annals of the Rheumatic Diseases*, **59**, 513–520. (2000).
72. (with J. Warren Beck, David A. Richards, R. Lawrence Edwards, Peter L. Smart, Douglas. J. Donahue, Sofia Herrera-Osterheld, George. S. Burr, Leal Calsoyas, A. J. Timothy Jull, and Dana Biddulph) Extremely Large Variations of Atmospheric ^{14}C Concentration During the Last Glacial Period. *Science*, **292**, 2453–2458. (2001)
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77. (with S. Barber and G. P. Nason) Posterior probability intervals for wavelet thresholding. *J. Royal Statist. Soc. Ser. B.*, **64**, 189–205. (2002).
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83. (with T. Bell, J. A. Newman, S. L. Turner and A. K. Lilley.) The contribution of species richness and composition to bacterial services. *Nature*, **436**, 1157–1160. (2005).

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88. (with J. K. Bizley, K. M. M. Walker, A. J. King and J. W. H. Schnupp.) Interdependent encoding of pitch, timbre and location cues in auditory cortex. *Journal of Neuroscience*, **29**, 2064–2075. (2009).
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93. (with Leen Slaets and Gerda Claeskens) Warping functional data in R and C via a Bayesian multiresolution approach. *Journal of Statistical Software* **55.3**, 1–22 and software package. (2013).
94. (with Kevin Bales and Olivia Hesketh) Modern slavery in the UK: How many victims? *Significance* **12.3**, 16–21. (2015).

Other publications and public outputs

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105. Poisson limit theory for U-statistics, some applications and a counter-example. *Stochastic Geometry and Stereology* (W. Weil and K.V. Ambartzumian, eds.), Teubner-Verlag, 170–178, (1984).
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123. Modern Slavery: an application of multiple systems estimation. Home Office. (2014). (available at <https://www.gov.uk/government/publications/modern-slavery-an-application-of-multiple-systems-estimation>)

⁴ available from <http://cran.r-project.org>