

# References

- Abraham, C., Cornillion, P. A., Matzner-Lober, E. and Molinari, N. (2003) Unsupervised curve-clustering using b-splines. *Scandinavian Journal of Statistics*, **30**, 581–595.
- Aguilera, A. M., Ocaña, F. A. and Valderrama, M. J. (1999) Forecasting with unequally spaced data by a functional principal component approach, *Test*, **8**, 233–253.
- Anderson, T. W. (1984) *An Introduction to Multivariate Statistical Analysis*. Second edition. New York: Wiley.
- Anselone, P. M. and Laurent, P. J. (1967) A general method for the construction of interpolating or smoothing spline-functions. *Numerische Mathematik*, **12**, 66–82.
- Ansley, C. F. and Kohn, R. (1990) Filtering and smoothing in state space models with partially diffuse initial conditions. *Journal of Time Series Analysis*, **11**, 275–293.
- Ansley, C. F., Kohn, R. and Wong, C-M. (1993) Nonparametric spline regression with prior information. *Biometrika*, **80**, 75–88.
- Aronszajn, N. (1950) Theory of reproducing kernels. *Transactions of the American Mathematical Society*, **68**, 337–404.
- Atteia, M. (1965) Spline-fonctions généralisées. *Comptes Rendus de l'Académie des Sciences Série I: Mathématique*, **261**, 2149–2152.
- Aubin, J-P. (2000) *Applied Functional Analysis, Second Edition*. New York: Wiley-Interscience.
- Basilevsky, A. (1994) *Statistical Factor Analysis and Related Methods*. New York: Wiley.

- Besse, P. (1979) Etude descriptive des processus: Approximation et interpolation. Thèse de troisième cycle, Université Paul-Sabatier, Toulouse.
- Besse, P. (1980) Deux exemples d'analyses en composantes principales filtrantes. *Statistique et Analyse des Données*, **3**, 5–15.
- Besse, P. (1988) Spline functions and optimal metric in linear principal component analysis. In J. L. A. van Rijkevorsel and J. de Leeuw (eds.) *Component and Correspondence Analysis: Dimensional Reduction by Functional Approximation*. New York: Wiley.
- Besse, P. (1991) Approximation spline de l'analyse en composantes principales d'une variable aléatoire hilbertienne. *Annales de la Faculté des Sciences de Toulouse*, **12**, 329–349.
- Besse, P. and Ramsay, J. O. (1986) Principal components analysis of sampled functions. *Psychometrika*, **51**, 285–311.
- Besse, P. and Cardot, H. (1997) Approximation spline de la prévision d'un processus fonctionnel autorégressif d'ordre 1. *Canadian Journal of Statistics*, **24**, 467–487.
- Besse, P., Cardot, H. and Ferraty, F. (1997). Simultaneous nonparametric regressions of unbalanced longitudinal data. *Computational Statistics and Data Analysis*, **24**, 255–270.
- Besse, P., Cardot, H. and Stephenson, D. (2000) Autoregressive forecasting of some functional climatic variations. *Scandinavian Journal of Statistics*, **27**, 673–687.
- Bock, R. D. and Thissen, D. (1980) Statistical problems of fitting individual growth curves. In F. E. Johnston, A. F. Roche and C. Susanne (eds.) *Human Physical Growth and Maturation: Methodologies and Factors*. New York: Plenum.
- Bookstein, F. L. (1991) *Morphometric Tools for Landmark Data: Geometry and Biology*. Cambridge: Cambridge University Press.
- Bosq, D. (2000) *Linear processes in function spaces*. New York: Springer.
- Brumback, B. and Rice, J. A. (1998) Smoothing spline models for the analysis of nested and crossed samples of curves (with discussion). *Journal of the American Statistical Association*, **93**, 961–994.
- Buckheit, J. B., Olshen, R. A., Blouch, K. and Myers, B. D. (1997) Modeling of progressive glomerular injury in humans with lupus nephritis. *American Journal of Physiology*, **237**, 158–169.
- Buja, A., Hastie, T. and Tibshirani, R. (1989) Linear smoothers and additive models (with discussion). *Annals of Statistics*, **17**, 453–555.
- Cai, Z., Fan, J. and Li, R. (2000) Efficient estimation and inferences for varying-coefficient models, *Journal of the American Statistical Association*, **95**, 888–902.
- Cai, Z., Fan, J. and Yao, Q. (2000) Functional-coefficient regression models for non-linear time series, *Journal of the American Statistical Association*, **95**, 941–956.
- Cailliez, F. and Pagès, J. P. (1976) *Introduction à l'analyse des données*. Paris: SMASH (Société de Mathématiques Appliquées et de Sciences Humaines).

- Cardot, H. (2002) Spatially adaptive splines for statistical linear inverse problems. *Journal of Multivariate Analysis*, **81**, 100–119.
- Cardot, H. (2004) Nonparametric estimation of smoothed principal components analysis of sampled noisy functions. *Journal of Nonparametric Statistics*, to appear.
- Cardot, H., Ferraty, F. and Sarda, P. (1999) Functional linear model, *Statistics & Probability Letters*, **45**, 11–22.
- Cardot, H., Ferraty, F. and Sarda, P. (2003) Spline estimators for the functional linear model. *Statistica Sinica*, **13**, 571–591.
- Cardot, H., Faivre, R. and Goulard, M. (2003). Functional approaches for predicting land use with the temporal evolution of coarse resolution remote sensing data. *Journal of Applied Statistics*, **30**, 1185–1199.
- Cardot, H., Ferraty, F., Mas, A. and Sarda, P. (2003). Testing Hypotheses in the functional linear model. /em Scandinavian Journal of Statistics, **30**, 241–255.
- Cardot, H., Faivre, R. and Maisongrande, P. (2004). Random Effects Varying Time Regression Models: Application to Remote Sensing. J. Antoch (ed.) /em Compstat 2004 proceedings, Physica-Verlag, 777–784.
- Cardot, H., Crambes, C. and Sarda, P. (2004). Estimation spline de quantiles conditionnels pour variables explicatives fonctionnelles. *Comptes Rendu de l'Académie des Sciences. Paris, serie I*, **339**, 141–144.
- Cardot H., Goia, A. and Sarda, P. (2004). Testing for no effect in functional linear regression models, some computational approaches. /em Communications in Statistics – Simulation and Computation, **33**, 179–199.
- Cardot, H., Ferraty, F., Mas, A. and Sarda, P. (2004) Testing hypotheses in the functional linear model. *Scandinavian Journal of Statistics*, **30**, 241–255.
- Castro, P. E., Lawton, W. H. and Sylvestre, E. A. (1986) Principal modes of variation for processes with continuous sample curves. *Technometrics*, **28**, 329–337.
- Char, B. W., Geeddes, K. O., Gonnet, G. H., Leong, B. L., Monagan, M. B. and Watt, S. M. (1991) *MAPLE V Language Reference Manual*. New York: Springer.
- Chiou, J.-M., Müller, H.-G. and Wang, J.-L. (2003) Functional quasi-likelihood regression models with smooth random effects. *Journal of the Royal Statistical Society, Series B.*, **65**, 405–423.
- Chui, C. K. (1992) *An Introduction to Wavelets*. San Diego: Academic Press.
- Cleveland, W. S. (1979) Robust locally weighted regression and smoothing scatterplots. *Journal of the American Statistical Association*, **74**, 829–836.
- Coddington, E. A. (1989) *An Introduction to Ordinary Differential Equations*. New York: Dover.
- Coddington, E. A. and Levinson, N. (1955) *Theory of Ordinary Differential Equations*. New York: McGraw-Hill.
- Cook, R. D. and Weisberg, S. (1982) *Residuals and Influence in Regression*. New York: Chapman and Hall.

- Cox, D. R. and Lewis, P. A. W. (1966) *The Statistical Analysis of Series of Events*. London: Methuen.
- Craven, P. and Wahba, G. (1979) Smoothing noisy data with spline functions: estimating the correct degree of smoothing by the method of generalized cross-validation, *Numerische Mathematik*, **31**, 377–403.
- Cressie, N. (1991) *Statistics for Spatial Data*. New York: Wiley.
- Cueva, A., Febrero, M. and Fraiman, R. (2002) Linear functional regression: The case of fixed design and functional response. *The Canadian Journal of Statistics*, **30**, 285–300.
- Dalzell, C. J. and Ramsay, J. O. (1993) Computing reproducing kernels with arbitrary boundary constraints. *SIAM Journal of Scientific Computing*, **14**, 511–518.
- Daubechies, I. (1992) *Ten Lectures on Wavelets*. CBMS-NSF Series in Applied Mathematics, **61**. Philadelphia: Society for Industrial and Applied Mathematics.
- Dauxois, J. and Pousse, A. (1976) Les analyses factorielles en calcul des probabilité et en statistique: Essai d'étude synthétique. Thèse d'état, Université Paul-Sabatier, Toulouse.
- Dauxois, J., Pousse, A. and Romain, Y. (1982) Asymptotic theory for the principal component analysis of a vector random function: Some applications to statistical inference. *Journal of Multivariate Analysis*, **12**, 136–154.
- Dauxois, J. and Nkiet, G. M. (2002) Measure of association for Hilbertian subspaces and some applications. *Journal of Multivariate Analysis*, **82**, 263–297.
- de Boor, C. (2001) *A Practical Guide to Splines*. Revised Edition. New York: Springer.
- Delves, L. M. and Mohamed, J. L. (1985) *Computational Methods for Integral Equations*. Cambridge: Cambridge University Press.
- Deville, J. C. (1974) Méthodes statistiques et numériques de l'analyse harmonique. *Annales de l'INSEE*, **15**, 7–97.
- Diggle, P. J., Liang, K.-Y. and Zeger, S. L. (1994) *Analysis of Longitudinal Data*. New York: Oxford University Press.
- Dongarra, J. J., Bunch, J. R., Moler, C. B. and Stewart, G. W. (1979) *LINPACK Users' Guide*. Philadelphia: Society for Industrial and Applied Mathematics.
- Donoho, D. L., Johnstone, I. M., Kerkyacharian, G. and Picard, D. (1995) Wavelet shrinkage: asymptopia? (with discussion). *Journal of the Royal Statistical Society, Series B*, **57**, 301–369.
- Draper, N. R. and Smith, H. (1998) *Applied Regression Analysis. Third Edition*. New York: Wiley.
- Dreesman, J. M. and Tutz, G. (2001) Non-stationary conditional models for spatial data based on varying coefficients, *The Statistician*, **50**, 1–15.
- Eaton, M. L. (1983) *Multivariate Statistics: A Vector Space Approach*. New York: Wiley.

- Eaton, M. L. and Perlman, M. D. (1973) The non-singularity of generalized sample covariance matrices. *Annals of Statistics*, **1**, 710–717.
- Efron, B. and Tibshirani, R. J. (1992) *An Introduction to the Bootstrap*. London: Chapman & Hall.
- Eilers, P. H. C. and Marx, B. D. (1996) Flexible smoothing with B-splines and penalties, with comments. *Statistical Science*, **11**, 89–121.
- Engle, R. F., Granger, C. W. J., Rice, J. A. and Weiss, A. (1986) Semi-parametric estimates of the relation between weather and electricity sales. *Journal of the American Statistical Association*, **81**, 310–320.
- Escabias, M., Aguilera, A. M. and Valderrama, M. J. (2004) Principal component estimation of functional logistic regression: Discussion of two different approaches. *Nonparametric Statistics*, In press.
- Eubank, R. L. (1999) *Spline Smoothing and Nonparametric Regression, Second Edition*. New York: Marcel Dekker.
- Eubank, R. L., Muñoz Maldonado, Y., Wang, N. and Wang, S. (2004) Smoothing spline estimation in varying coefficient models. *Journal of the Royal Statistical Society, Series B.*, **66**, 653–667.
- Falkner, F. (ed.) (1960) *Child Development: An International Method of Study*. Basel: Karger.
- Fan, J. and Gijbels, I. (1996) *Local Polynomial Modelling and its Applications*. London: Chapman and Hall.
- Fan, J. and Lin, S.-K. (1998) Tests of significance when data are curves. *Journal of the American Statistical Association*, **93**, 1007–1021.
- Fan, J., Yao, Q. and Cai, Z. (2003) Adaptive varying-coefficient linear models. *Journal of the Royal Statistical Society, Series B*, **65**, 57–80.
- Faraway, J. J. (1997) Regression analysis for a functional response. *Technometrics*, **39**, 254–261.
- Ferraty, F. and Vieu, P. (2001) The functional nonparametric model and its applications to spectrometric data. *Computational Statistics*, **17**, 545–564.
- Ferraty, F., Goia, A. and Vieu, P. (2002) Functional nonparametric model for time series: A fractal approach for dimension reduction. *Test*, **11**, 317–344.
- Frank, I. E. and Friedman, J. H. (1993) A statistical view of some chemometrics regression tools. *Technometrics*, **35**, 109–135.
- Friedman, J. H. and Silverman, B. W. (1989) Flexible parsimonious smoothing and additive modeling (with discussion). *Journal of the American Statistical Association*, **31**, 1–39.
- Gasser, T. and Kneip, A. (1995). Searching for structure in curve samples. *Journal of the American Statistical Association*, **90**, 1179–1188.
- Gasser, T., Kneip, A., Binding, A., Prader, A. and Molinari, L. (1991a) The dynamics of linear growth in distance, velocity and acceleration. *Annals of Human Biology*, **18**, 187–205.
- Gasser, T., Kneip, A., Ziegler, P., Largo, R., Molinari, L., and Prader, A. (1991b) The dynamics of growth of height in distance, velocity and acceleration. *Annals of Human Biology*, **18**, 449–461.

- Gasser, T., Kneip, A., Ziegler, P., Largo, R. and Prader, A. (1990) A method for determining the dynamics and intensity of average growth. *Annals of Human Biology*, **17**, 459–474.
- Gasser, T. and Müller, H.-G., (1979) Kernel estimation of regression functions. In T. Gasser and M. Rosenblatt (eds.) *Smoothing Techniques for Curve Estimation*. Heidelberg: Springer, pp. 23–68.
- Gasser, T. and Müller, H.-G., (1984) Estimating regression functions and their derivatives by the kernel method. *Scandinavian Journal of Statistics*, **11**, 171–185.
- Gasser, T., Müller, H.-G., Köhler, W., Molinari, L. and Prader, A. (1984). Nonparametric regression analysis of growth curves. *Annals of Statistics*, **12**, 210–229.
- Gauss, C. F. (1809) *Theoria motus corporum celestium*. Hamburg: Perthes et Besser.
- Gelfand, A. E., Kim, H.-J., Sirmans, C.F. and Banerjee, S. (2003) Spatial modeling with spatially varying coefficient processes. *Journal of the American Statistical Association*, **98**, 387–396.
- Gervini, D. and Gasser, T. (2004) Self-modeling warping functions. *Journal of the Royal Statistical Society, Series B*, **66**, 959–971.
- Golub, G. and Van Loan, C. F. (1989) *Matrix Computations*. Second edition. Baltimore: Johns Hopkins University Press.
- Grambsch, P. M., Randall, B. L. Bostick, R. M., Potter, J. D. and Louis, T. A. (1995) Modeling the labeling index distribution: an application of functional data analysis. *Journal of the American Statistical Association*, **90**, 813–821.
- Green, G. (1828) *An Essay on the Mathematical Analysis to the Theories of Electricity and Magnetism*. Privately printed.
- Green, P. J. and Silverman, B. W. (1994) *Nonparametric Regression and Generalized Linear Models: A Roughness Penalty Approach*. London: Chapman and Hall.
- Greenhouse, S. W. and Geisser, S. (1959) On methods in the analysis of profile data. *Psychometrika*, **24**, 95–112.
- Grenander, U. (1981) *Abstract Inference*. New York: Wiley.
- Gu, C. (2002) *Smoothing Spline ANOVA Models*. New York: Springer.
- Guo, W. (2002) Functional mixed effects models. *Biometrics*, **58**, 121–128.
- Hall, P. and Heckman, N. E. (2002) Estimating and depicting the structure of a distribution of random functions. *Biometrika*, **89**, 145–158.
- Hanson, M. H. and Kooperberg, C. (2002) Spline adaptation in extended linear models, with discussion. *Statistical Science*, **17**, 2–51.
- Härdle, W. (1990) *Applied Nonparametric Regression*. Cambridge: Cambridge University Press.
- Hastie, T. and Tibshirani, R. (1990) *Generalized Additive Models*. New York: Chapman and Hall.
- Hastie, T. and Tibshirani, R. (1990) Varying-coefficient models. *Journal of the Royal Statistical Society, Series B*, **55**, 757–796.

- Hastie, T., Buja, A. and Tibshirani, R. (1995) Penalized discriminant analysis. *Annals of Statistics*, **23**, 73–102.
- He, G. Z., Müller, H-G. and Wang, J. I. (2003) Functional canonical analysis for square integrable stochastic processes. *Journal of Multivariate Analysis*, **85**, 54–77.
- Heckman, N. E. and Ramsay, J. O. (2000). Penalized regression with model based penalties. *Canadian Journal of Statistics*. **28**, 241–258.
- Hermanussen, M., Thiel, C., von Büren, E., de los Angeles Rol. de Lama, M., Pérez Romero, A., Ariznaverreta Ruiz, C., Burmeister, J., and Tresguerres, J. A. F. (1998). Micro and macro perspectives in auxology: Findings and considerations upon the variability of short term and individual growth and the stability of population derived parameters. *Annals of Human Biology*, **25**, 359–395.
- Huynh, H. S. and Feldt, L. (1976) Estimation of the Box correction for degrees of freedom from sample data in randomized block and split-plot designs. *Journal of Educational Statistics*, **1**, 69–82.
- Houghton, A. N., Flannery, J. and Viola, M. V. (1980) Malignant melanoma in Connecticut and Denmark. *International Journal of Cancer*, **25**, 95–104.
- Hutchison, M. F. and de Hoog, F. R. (1985) Smoothing noisy data with spline functions. *Numerische Mathematik*, **47**, 99–106.
- Ince, E. L. (1956) *Ordinary Differential Equations*. New York: Dover.
- James, G. M. (2002) Generalized linear models with functional predictors, *Journal of the Royal Statistical Society, Series B.*, **64**, 411–432.
- James, G. M. and Hastie, T. J. (2001) Functional linear discriminant analysis for irregularly sampled curves, *Journal of the Royal Statistical Society, Series B.*, **63**, 533–550.
- James, G. M. and Sugar, C. A. (2003) Clustering sparsely sampled functional data. *Journal of the American Statistical Association*, **98**, 397–408.
- James, G. M., Hastie, T. J. and Sugar, C. A. (2000) Principal component models for sparse functional data, *Biometrika*, **87**, 587–602.
- Johnson, R. A. and Wichern, D. A. (1988) *Applied Multivariate Statistical Analysis*. Englewood Cliffs, N. J.: Prentice Hall.
- Johnstone, I. M. and Silverman, B. W. (1997) Wavelet threshold estimators for data with correlated noise. *Journal of the Royal Statistical Society, Series B*, **59**, 319–351.
- Jolicoeur, P., Pontier, J., Abidi, H. (1992) Asymptotic models for the longitudinal growth of human stature. *American Journal of Human Biology*, **4**, 461–468.
- Karhunen, K. (1947) Über linear Methoden in der Warscheinlichkeitsrechnung. *Annales Academiae Scientiarum Fennicae*, **37**, 1–79.
- Keselman, H. J. and Keselman, J. C. (1993) Analysis of repeated measurements. In L. K. Edwards (ed.) *Applied analysis of Variance in Behavioral Science*, New York: Marcel Dekker, 105–145.

- Kim, Y.-J. and Gu, G. (2004) Smoothing spline Gaussian regression: More scalable computation via efficient approximation. *Journal of the Royal Statistical Association, Series B.*, **66**, 337–356.
- Kimeldorf, G. S. and Wahba, G. (1970) A correspondence between Bayesian estimation on stochastic processes and smoothing by splines. *Annals of Mathematical Statistics*, **41**, 495–502.
- Kneip, A. and Engel, J. (1995) Model estimation in nonlinear regression under shape invariance. *Annals of Statistics*, **23**, 551–570.
- Kneip, A. and Gasser, T. (1988) Convergence and consistency results for self-modeling nonlinear regression. *Annals of Statistics*, **16**, 82–112.
- Kneip, A. and Gasser, T. (1992) Statistical tools to analyze data representing a sample of curves. *Annals of Statistics*, **20**, 1266–1305.
- Kneip, A., Li, X., MacGibbon, K. B. and Ramsay, J. O. (2000) Curve registration by local regression. *The Canadian Journal of Statistics*, **28**, 19–29.
- Kneip, A. and Utikal, K. J. (2001) Inference for density families using functional principal components analysis. *Journal of the American Statistical Association*, **96**, 519–542.
- Koenker, R., Ng, P. and Portnoy, S. (1994) Quantile smoothing splines. *Biometrika*, **81**, 673–680.
- Krommer, A. R. and Überhuber, C. W. (1998) *Computational Integration*. Philadelphia: Society for Industrial and Applied Mathematics.
- Lancaster, H. O. (1969) *The Chi-squared Distribution*. New York: Wiley.
- Largo, R. H., Gasser, T., Prader, A., Stützle, W. and Huber, P. J. (1978) Analysis of the adolescent growth spurt using smoothing spline functions. *Annals of Human Biology*, **5**, 421–434.
- Legendre, A. M. (1805) *Nouvelles Méthodes pour la Détermination des Orbites des Comètes*. Paris: Courcier.
- Leurgans, S. E., Moyeed, R. A. and Silverman, B. W. (1993) Canonical correlation analysis when the data are curves. *Journal of the Royal Statistical Society, Series B*, **55**, 725–740.
- Li, K.-C. (1991) Sliced inverse regression for dimension reduction (with discussion). *Journal of the American Statistical Association*, **86**, 316–342.
- Li, K.-C., Aragon, Y., Shedden, K. and Thomas Agnan, C. (2003) Dimension reduction for multivariate response data. *Journal of the American Statistical Association*, **98**, 99–109.
- Liggett, W., Cazares, L. and Semmes, O. J. (2003) A look at mass spectral measurement. *Chance*, **16**, 24–28.
- Lindsey, J. K. (1993) *Models for Repeated Measurements*. New York: Oxford University Press.
- Lindstrom, M. J. (2002) Bayesian estimation of free-knot splines using reversible jumps. *Computational Statistics and Data Analysis*, **41**, 255–269.
- Lindstrom, M. J. and Kotz, S. (2004) Free-knot splines. In S. Kotz, N. L. Johnson and B. R. Campbell (eds.) *Encyclopedia of Statistics*. New York: Wiley.



- Liu, X. and Müller, H-G. (2004) Functional convex averaging and synchronization for time-warped random curves. *Journal of the American Statistical Association*, **99**, 687–699.
- Locantore, N., Marron, J. S., Simpson, D. G., Tripoli, N., Zhang, J. T. and Cohen, K. L. (1999) Robust principal component analysis for functional data. *Test*, **8**, 1–73.
- Loève, M. (1945) Fonctions aléatoires de second ordre. *Comptes Rendus de l'Académie des Sciences, Série I: Mathématique*, **220**, 469.
- Mao, W. and Zhao, L. H. (2003) Free-knot polynomial splines with confidence intervals. *Journal of the Royal Statistical Society, Series B.*, **65**, 901–919.
- Maxwell, S. E. and Delaney, H. D. (2003) *Designing Experiments and Analyzing Data: A Model Comparison Perspective*. Belmont, CA: Wadsworth.
- Moore, R. E. (1985) *Computational Functional Analysis*. Chichester: Wiley.
- Mulaik, S. A. (1972) *The Foundations of Factor Analysis*. New York: McGraw-Hill.
- Müller, H-G. and Stadtmüller, U. (2004) Generalized functional linear models. *Annals of Statistics*, to appear.
- Muñoz Maldonado, Y., Staniswalis, J. G., Irwin, L. N. and Byers, D. (2002) A similarity analysis of curves. *The Canadian Journal of Statistics*, **30**, 373–381.
- Nadaraya, E. A. (1964) On estimating regression. *Theory of Probability and its Applications*, **10**, 186–190.
- Nason, G. P. and Silverman, B. W. (1994) The discrete wavelet transform in S. *Journal of Computational and Graphical Statistics*, **3**, 163–191.
- Nielsen, H. A., Nielsen, T. S., Joensen, A. K., Madsen, H. and Holst, Ja. (2000) Tracking time-varying coefficient functions. *International Journal of Adaptive Control and Signal Processing*, **14**, 813–828.
- Ocaña, F. A., Aguilera, A. M. and Valderrama, M. J. (1999) Functional principal components analysis by choice of norm. *Journal of Multivariate Analysis*, **71**, 262–276.
- OECD (1995) *Quarterly National Accounts*, **3**.
- Øksendal, B. (1995) *Stochastic Differential Equations: An Introduction with Applications*. New York: Springer.
- Olshen, R. A., Biden, E. N., Wyatt, M. P. and Sutherland, D. H. (1989) Gait analysis and the bootstrap. *Annals of Statistics*, **17**, 1419–1440.
- O'Sullivan, F. (1986) A statistical perspective on ill-posed linear inverse problems. *Statistical Science*, **1**, 502–527.
- O'Sullivan, F., Yandell, B. and Raynor, W. (1986) Automatic smoothing of regression functions in generalized linear models. *Journal of the American Statistical Association*, **81**, 441–455.
- Parzen, E. (1961) An approach to time series analysis. *Annals of Mathematical Statistics*, **32**, 951–989.

- Parzen, E. (1963) Probability density functionals and reproducing kernel Hilbert spaces, In M. Rosenblatt (ed.) *Proceedings of the Symposium on Time Series Analysis*, Providence, RI.: Brown University, 155–169.
- Pezzulli, S. D. and Silverman, B. W. (1993) Some properties of smoothed principal components analysis for functional data. *Computational Statistics*, **8**, 1–16.
- Pinheiro, J. C. and Bates, D. M. (2000) *Mixed-effects Models in S and S-PLUS*. New York: Springer.
- Pousse, A. (1992) Etudes asymptotiques. In J.-J. Dreesbeke, B. Fichet and P. Tassi (Eds.) *Modèles pour l'Analyse des Données Multidimensionnelles*. Paris: Economica.
- Press W. H., Teukolsky S. A., Vetterling W. T. and Flannery B. P. (1999) *Numerical recipes in C*. Second edition. Cambridge: Cambridge University Press.
- Ramsay, J. O. (1982). When the data are functions. *Psychometrika*, **47**, 379–396.
- Ramsay, J. O. (1989) The data analysis of vector-valued functions. In E. Diday (ed.) *Data Analysis, Learning Symbolic and Numeric Knowledge*. Commack, N. Y.: Nova Science Publishers.
- Ramsay, J. O. (1996a) Principal differential analysis: data reduction by differential operators. *Journal of the Royal Statistical Society, Series B*, **58**, 495–508.
- Ramsay, J. O. (1996b) Estimating smooth monotone functions. *Journal of the Royal Statistical Society, Series B.*, **60**, 365–375.
- Ramsay, J. O. (1996c) Pspline: An Splus module for polynomial spline smoothing. Computer software in the statlib archive.
- Ramsay, J. O. (2000). Functional components of variation in handwriting. *Journal of the American Statistical Association*, **95**, 9–15.
- Ramsay, J. O., Altman, N. and Bock, R. D. (1994) Variation in height acceleration in the Fels growth data. *Canadian Journal of Statistics*, **22**, 89–102.
- Ramsay, J. O., Bock, R. D. and Gasser, T. (1995) Comparison of height acceleration curves in the Fels, Zurich, and Berkeley growth data. *Annals of Human Biology*, **22**, 413–426.
- Ramsay, J. O. and Dalzell, C. J. (1991) Some tools for functional data analysis (with Discussion). *Journal of the Royal Statistical Society, Series B*, **53**, 539–572.
- Ramsay, J. O., Heckman, N. and Silverman, B. W. (1997) Some general theory for spline smoothing. *Behavioral Research: Instrumentation, Methods, and Computing*, **29**, 99–106.
- Ramsay, J. O. and Li, X. (1996) Curve registration. *Journal of the Royal Statistical Society, Series B.*, **60**, 351–363.
- Ramsay, J. O., Munhall, K., Gracco, V. L. and Ostry, D. J. (1996) Functional data analyses of lip motion. *Journal of the Acoustical Society of America*, **99**, 3718–3727.

- Ramsay, J. O. and Silverman, B. W. (2002) *Applied Functional Data Analysis*. New York: Springer.
- Ramsay, J. O., Wang, X. and Flanagan, R. (1995) A functional data analysis of the pinch force of human fingers. *Applied Statistics*, **44**, 17–30.
- Rao, C. R. (1958) Some statistical methods for comparison of growth curves. *Biometrics*, **14**, 1–17.
- Rao, C. R. (1987) Prediction in growth curve models (with discussion). *Statistical Science*, **2**, 434–471.
- Ratcliffe, S. J., Leader, L. R. and Heller, G. Z. (2002) Functional data analysis with application to periodically stimulated foetal heart rate data. I: Functional regression. *Statistics in Medicine*, **21**, 1103–1114.
- Ratcliffe, S. J., Heller, G. Z. and Leader, L. R. (2002) Functional data analysis with application to periodically stimulated foetal heart rate data. II: Functional logistic regression. *Statistics in Medicine*, **21**, 1115–1127.
- Reinsch, C. (1967) Smoothing by spline functions. *Numerische Mathematik*, **10**, 177–183.
- Reinsch, C. (1970) Smoothing by spline functions II. *Numerische Mathematik*, **16**, 451–454.
- Rice, J. A. and Wo, C. O. (2001) Nonparametric mixed effects models for unequally sampled noisy curves. *Biometrics*, **57**, 253–259.
- Rice, J. A. and Silverman, B. W. (1991) Estimating the mean and covariance structure nonparametrically when the data are curves. *Journal of the Royal Statistical Society, Series B*, **53**, 233–243.
- Ripley, B. D. (1991) *Statistical Inference for Spatial Processes*. Cambridge: Cambridge University Press.
- Roach, G. F. (1982) *Green's Functions*. Second edition. Cambridge: Cambridge University Press.
- Roche, A. (1992) *Growth, Maturation and Body Composition: The Fels Longitudinal Study 1929–1991*. Cambridge: Cambridge Press.
- Rønn, B. B. (2001) Nonparametric maximum likelihood estimation for shifted curves. *Journal of the Royal Statistical Society, Series B.*, **63**, 243–259.
- Rossi, N., Wang, X. and Ramsay, J. O. (2002) Nonparametric item response function estimates with the EM algorithm. *Journal of the Behavioral and Educational Sciences*, **27**, 291–317.
- Sakoe, H. and Chiba, S. (1978) Dynamic programming algorithm for optimizing for spoken word recognition. *IEEE Transactions on Acoustics, Speech, and Signal processing*, **26**, 43–49.
- Scott, D. W. (1992) *Multivariate Density Estimation*. New York: Wiley.
- Schumaker, L. (1981) *Spline Functions: Basic Theory*. New York: Wiley.
- Scott, D. W. (1992) *Multivariate Density Estimation*. New York: Wiley.
- Searle, S. R., Casella, G. and McCulloch, C. E. (1992) *Variance Components*. New York: Wiley.
- Seber, G. A. F. (1984) *Multivariate Observations*. New York: Wiley.

- Silverman, B. W. (1982) On the estimation of a probability density function by the maximum penalized likelihood method. *Annals of Statistics*, **10**, 795–810.
- Silverman, B. W. (1985) Some aspects of the spline smoothing approach to non-parametric regression curve fitting. *Journal of the Royal Statistical Society, Series B*, **47**, 1–52.
- Silverman, B. W. (1986) *Density Estimation for Statistics and Data Analysis*. London: Chapman and Hall.
- Silverman, B. W. (1994) Function estimation and functional data analysis. In A. Joseph, F. Mignot, F. Murat, B. Prum and R. Rentschler (eds.) *First European Congress of Mathematics*. Basel: Birkhäuser. vol II, pp. 407–427.
- Silverman, B. W. (1995). Incorporating parametric effects into functional principal components analysis. *Journal of the Royal Statistical Society, Series B*, **57**, 673–689.
- Silverman, B. W. (1996) Smoothed functional principal components analysis by choice of norm. *Annals of Statistics*, **24**, 1–24.
- Silverman, B. W. (1999) Wavelets in statistics: Beyond the standard assumptions. *Philosophical Transactions of the Royal Society of London, Series A*. **357**, 2459–2473.
- Silverman, B. W. (2000) Wavelets for regression and other statistical problems. In M. G. Schimek (Ed.) *Smoothing and Regression: Approaches, Computation and Application*. New York: Wiley.
- Silverman, B. W. and Vassilicos, J. C. (1999) Wavelets: The key to intermittent information? *Philosophical Transactions of the Royal Society of London, Series A*. **357**, 2393–2395.
- Snyder, D. L. and Miller, M. I. (1991) *Random Point Processes in Time and Space*. New York: Springer.
- Simonoff, J. S. (1996) *Smoothing Methods in Statistics*. New York: Springer.
- Spitzner, D. J., Marron, J. S. and Essick, G. K. (2003) Mixed-model functional ANOVA for studying human tactile perception. *The Journal of the American Statistical Association*, **98**, 263–272.
- Statistical Sciences (1995) *S-PLUS Guide to Statistical and Mathematical Analysis, Version 3.3*. Seattle: StatSci, a division of MathSoft, Inc.
- Stoer, J. and Bulirsch, R. (2002) *Introduction to Numerical Analysis*. Third Edition. New York: Springer.
- Stone, M. (1987) *Coordinate-Free Multivariable Statistics*. Oxford: Clarendon Press.
- Tarpey, T. and Kinatader, K. K. J. (2003) Clustering functional data. *Journal of Classification*, **20**, 93–114.
- Tenenbaum, M. and Pollard, H. (1963) *Ordinary Differential Equations*. New York: Harper and Row.
- Tucker, L. R. (1958) Determination of parameters of a functional relationship by factor analysis. *Psychometrika*, **23**, 19–23.

- Tuddenham, R. D. and Snyder, M. M. (1954) Physical growth of California boys and girls from birth to eighteen years. *University of California Publications in Child Development* **1**, 183–364.
- Valderrama, M. J., Aguilera, A. M. and Ocaña, F. A. (2000) *Predicción Dinámica Mediante Análisis de Datos Funcionales*. Madrid: Hespérides.
- Viele, K. (2001) Evaluating fit in functional data analysis using model embeddings. *The Canadian Journal of Statistics*, **29**, 51–66.
- Vinod, H. D. (1976) Canonical ridge and econometrics of joint production. *Journal of Econometrics*, **4**, 147–166.
- Viviani, R., Grön, G. and Spitzer, M. (2005) *Human Brain Mapping*, **24**, 109–129.
- Wahba, G. (1978) Improper priors, spline smoothing and the problem of guarding against model errors in regression. *Journal of the Royal Statistical Society, Series B*, **40**, 364–372.
- Wahba, G. (1990) *Spline Models for Observational Data*. Philadelphia: Society for Industrial and Applied Mathematics.
- Wand, M. P. and Jones, M. C. (1995) *Kernel Smoothing*. London: Chapman and Hall.
- Wang, K. and Gasser, T. (1997) The alignment of curves by dynamic time warping. *The Annals of Statistics*, **25**, 1251–1276.
- Wang, K. and Gasser, T. (1998) Asymptotic and bootstrap confidence bounds for the structural average of curves. *The Annals of Statistics*, **26**, 972–991.
- Wang, K. and Gasser, T. (1999) Synchronizing sample curves nonparametrically. *The Annals of Statistics*, **27**, 439–460.
- Watson, G. S. (1964) Smooth regression analysis. *Sankhyā, Series A*, **26**, 101–116.
- Weinert, H. L., Byrd, R. H. and Sidhu, G. S. (1980) A stochastic framework for recursive computation of spline functions: Part II, smoothing splines. *Journal of Optimization Theory and Applications*, **2**, 255–268.
- West, M. and Harrison, P. J. (1989) *Bayesian Forecasting and Dynamic Models*. New York: Springer.
- West, M., Harrison, P. J. and Migon, H. S. (1985) Dynamic generalized linear models and Bayesian forecasting (with discussion). *Journal of the American Statistical Association*, **80**, 73–97.
- Wilson, A. M., Seelig, T. J., Shield, R. A. and Silverman, B. W. (1996) The effect of imposed foot imbalance on point of force application in the equine. Technical report, Department of Veterinary Basic Sciences, Royal Veterinary College.
- Wolfram, S. (1991) *The Mathematica Book, fifth edition*. Champaign, Illinois: Wolfram Research Inc.
- Wu, C. O., Chiang, C.-T. and Hoover, D. R. (1998) Asymptotic confidence regions for kernel smoothing of a varying coefficient model with longitudinal data. *Journal of the American Statistical Association*, **93**, 1388–1418.

- Yao, F., Müller, H.-G., Clifford, A. J., Dueker, S. R., Follet, J., Lin, Y., Buchholz, B. A. and Vogel, J. S. (2003) Shrinkage estimation for functional principal component scores with application to the population kinetics of plasma folate. *Biometrics*, **59**, 676–685.
- Yao, F., Müller, H.-G. and Wang, J.-L. (2004) Functional data analysis for sparse longitudinal data. *Journal of the American Statistical Association*, to appear.
- Zhang, C. (2003) Calibrating the degrees of freedom for automatic data smoothing and effective curve checking. *The Journal of the American Statistical Association*, **98**, 609–628.
- Zhang, W. and Lee, S.-K. (2000) Variable bandwidth selection in varying-coefficient models, *Journal of Multivariate Analysis*, **74**, 116–134.
- Zhang, W., Lee, S.-K. and Song, X. (2002) Semiparametric smooth coefficient models, *Journal of Business and Economic Statistics*, **20**, 412–422.