References

Abramowitz, M. and Stegun, I. A. (1964). *Handbook of Mathematical Functions with Formulas, Graphs, and Mathematical Tables*, Washington, DC: National Bureau of Standards.

Andrews, D. F. and Herzberg, A. M. (1985). *Data: A Collection of Problems From Many Fields for the Student and Research Worker*, Springer, Berlin.

Aronszajn, N. (1950). Theory of reproducing kernels, *Transactions of the American Mathematics Society* **68**: 337–404.

Bennett, L. H., Swartzendruber, L. J. Turchinskaya, M. J., Blendell, J. E., Habib, J. M. and Seyoum, H. M. (1994). Long-time magnetic relaxation measurements on a quench melt growth YBCO superconductor, *Journal of Applied Physics* **76**: 6950–6952.

Berlinet, A. and Thomas-Agnan, C. (2004). *Reproducing Kernel Hilbert Spaces in Probability and Statistics*, Kluwer Academic, Norwell, MA.

Breslow, N. E. and Clayton, D. G. (1993). Approximate inference in generalized linear mixed models, *Journal of the American Statistical Association* **88**: 9–25.

Carroll, R. J., Fan, J., Gijbels, I. and Wand, M. P. (1997). Generalized partial linear single-index models, *Journal of the American Statistical Association* **92**: 477–489.

Coddington, E. A. (1961). *An Introduction to Ordinary Differential Equations*, Prentice-Hall, NJ.

Cox, D. D., Koh, E., Wahba, G. and Yandell, B. (1988). Testing the (parametric) null model hypothesis in (semiparametric) partial and generalized spline model, *Annals of Statistics* **16**: 113–119.

Cox, D. R. and Hinkley, D. V. (1974). *Theoretical Statistics*, Chapman and Hall, London.

Craven, P. and Wahba, G. (1979). Smoothing noisy data with spline functions, *Numerische Mathematik* **31**: 377–403.

Dalzell, C. J. and Ramsay, J. O. (1993). Computing reproducing kernels with arbitrary boundary constraints, *SIAM Journal on Scientific Computing* **14**: 511–518.

Davidson, L. (2006). Comparing tongue shapes from ultrasound imaging using smoothing spline analysis of variance., *Journal of the Acoustical Society of America* **120**: 407–415.

Davies, R. B. (1980). The distribution of a linear combination of χ^2 random variables, *Applied Statistics* **29**: 323–333.

Debnath, L. and Mikusiński, P. (1999). *Introduction to Hilbert Spaces with Applications*, Academic Press, London.

Douglas, A. and Delampady, M. (1990). *Eastern Lake Survey — Phase I: documentation for the data base and the derived data sets*, SIMS Technical Report 160. Department of Statistics, University of British Columbia, Vancouver.

Duchon, J. (1977). Spline minimizing rotation-invariant semi-norms in Sobolev spaces, pp. 85–100. In *Constructive Theory of Functions of Several Variables*, W. Schemp and K. Zeller eds., Springer, Berlin.

Earn, D. J. D., Rohani, P., Bolker, B. M. and Gernfell, B. T. (2000). A simple model for complex dynamical transitions in epidemics, *Science* **287**: 667–670.

Efron, B. (2001). Selection criteria for scatterplot smoothers, *Annals of Statistics* **29**: 470–504.

Efron, B. (2004). The estimation of prediction error: covariance penalties and cross-validation (with discussion), *Journal of the American Statistical Association* **99**: 619–632.

Eubank, R. (1988). *Spline Smoothing and Nonparametric Regression*, Dekker, New York.

Eubank, R. (1999). *Nonparametric Regression and Spline Smoothing, 2nd ed.*, Dekker, New York.

Evans, M. and Swartz, T. (2000). *Approximating Integrals via Monte Carlo and Deterministic Methods*, Oxford University Press, Oxford, UK.

Fisher, M. D., Nychka, D. and Zervos, D. (1995). *Fitting the term structure of interest rates with smoothing spline*, Working Paper 95-1, Finance and Eonomics Discussion Series, Federal Reserve Board.

Flett, T. M. (1980). *Differential Analysis*, Cambridge University Press, London.

Friedman, J. H. and Stuetzle, W. (1981). Projection pursuit regression, *Journal of the American Statistical Association* **76**: 817–823.

Gause, G. F. (1934). *The Struggle for Existence*, Williams & Wilkins, Baltimore, MD.

Genton, M. G. and Hall, P. (2007). Statistical inference for evolving periodic functions, *Journal of the Royal Statistical Society B* **69**: 643–657.

Green, P. J. and Silverman, B. W. (1994). *Nonparametric Regression and Generalized Linear Models: A Roughness Penalty Approach*, Chapman and Hall, London.

Grizzle, J. E. and Allen, D. M. (1969). Analysis of growth and dose response curves, *Biometrics* **25**: 357–381.

Gu, C. (1992). Penalized likelihood regression: A Bayesian analysis, *Statistica Sinica* **2**: 255–264.

Gu, C. (2002). *Smoothing Spline ANOVA Models*, Springer, New York.

Guo, W., Dai, M., Ombao, H. C. and von Sachs, R. (2003). Smoothing spline ANOVA for time-dependent spectral analysis, *Journal of the American Statistical Association* **98**: 643–652.

Hall, P., Kay, J. W. and Titterington, D. M. (1990). Asymptotically optimal difference-based estimation of variance in nonparametric regression, *Biometrika* **77**: 521–528.

Harville, D. (1976). Extension of the Gauss-Markov theorem to include the estimation of random effects, *Annals of Statistics* **4**: 384–395.

Harville, D. A. (1997). *Matrix Algebra From A Statistician's Perspective*, Springer, New York.

Hastie, T. and Tibshirani, R. (1990). *Generalized Additive Models*, Chapman and Hall, London.

Hastie, T. and Tibshirani, R. (1993). Varying coefficient model, *Journal of the Royal Statistical Society B* **55**: 757–796.

Heckman, N. (1997). *The theory and application of penalized least squares methods or reproducing kernel Hilbert spaces made easy*, University of British Columbia Statistics Department Technical Report number 216.

Heckman, N. and Ramsay, J. O. (2000). Penalized regression with model-based penalties, *Canadian Journal of Statistics* **28**: 241–258.

Jarrow, R., Ruppert, D. and Yu, Y. (2004). Estimating the term structure of corporate debt with a semiparametric penalized spline model, *Journal of the American Statistical Association* **99**: 57–66.

Ke, C. and Wang, Y. (2001). Semi-parametric nonlinear mixed-effects models and their applications (with discussion), *Journal of the American Statistical Association* **96**: 1272–1298.

Ke, C. and Wang, Y. (2004). Nonparametric nonlinear regression models, *Journal of the American Statistical Association* **99**: 1166–1175.

Kimeldorf, G. S. and Wahba, G. (1971). Some results on Tchebycheffian spline functions, *Journal of Mathematical Analysis and Applications* **33**: 82–94.

Klein, R., Klein, B. E. K., Moss, S. E., Davis, M. D. and DeMets, D. L. (1988). Glycosylated hemoglobin predicts the incidence and progression of diabetic retinopathy, *Journal of the American Medical Association* **260**: 2864–2871.

Klein, R., Klein, B. E. K., Moss, S. E., Davis, M. D. and DeMets, D. L. (1989). Is blood pressure a predictor of the incidence or progression of diabetic retinopathy, *Archives of Internal Medicine* **149**: 2427–2432.

Kronfol, Z., Nair, M., Zhang, Q., Hill, E. and Brown, M. (1997). Circadian immune measures in healthy volunteers: Relationship to hypothalamic-pituitary-adrenal axis hormones and sympathetic neurotransmitters, *Psychosomatic Medicine* **59**: 42–50.

Lawton, W. H., Sylvestre, E. A. and Maggio, M. S. (1972). Self-modeling nonlinear regression, *Technometrics* **13**: 513–532.

Lee, Y., Nelder, J. A. and Pawitan, Y. (2006). *Generalized Linear Models with Random Effects: Unified Analysis via H-likelihood*, Chapman and Hall, London.

Li, K. C. (1986). Asymptotic optimality of C_L and generalized cross-validation in ridge regression with application to spline smoothing, *Annals of Statistics* **14**: 1101–1112.

Lindstrom, M. J. and Bates, D. M. (1990). Nonlinear mixed effects models for repeated measures data, *Biometrics* **46**: 673–687.

Liu, A. and Wang, Y. (2004). Hypothesis testing in smoothing spline models, *Journal of Statistical Computation and Simulation* **74**: 581–597.

Liu, A., Meiring, W. and Wang, Y. (2005). Testing generalized linear models using smoothing spline methods, *Statistica Sinica* **15**: 235–256.

Liu, A., Tong, T. and Wang, Y. (2007). Smoothing spline estimation of variance functions, *Journal of Computational and Graphical Statistics* **16**: 312–329.

Ma, X., Dai, B., Klein, R., Klein, B. E. K., Lee, K. and Wahba, G. (2010). *Penalized likelihood regression in reproducing kernel Hilbert spaces with randomized covariate data*, University of Wisconsin Statistics Department Technical Report number 1158.

McCullagh, P. and Nelder, J. (1989). *Generalized Linear Models*, Chapman and Hall, London.

Meinguet, J. (1979). Multivariate interpolation at arbitrary points made simple, *Journal of Applied Mathematics and Physics (ZAMP)* **30**: 292–304.

Neal, D. (2004). *Introduction to Population Biology*, Cambridge University Press, Cambridge, UK.

Nychka, D. (1988). Bayesian confidence intervals for smoothing splines, *Journal of the American Statistical Association* **83**: 1134–1143.

Opsomer, J. D., Wang, Y. and Yang, Y. (2001). Nonparametric regression with correlated errors, *Statistical Science* **16**: 134–153.

O'Sullivan, F. (1986). A statistical perspective on ill-posed inverse problems (with discussion), *Statistical Science* **4**: 502–527.

Parzen, E. (1961). An approach to time series analysis, *Annals of Mathematical Statistics* **32**: 951–989.

Pinheiro, J. and Bates, D. M. (2000). *Mixed-effects Models in S and S-plus*, Springer, New York.

Qin, L. and Wang, Y. (2008). Nonparametric spectral analysis with applications to seizure characterization using EEG time series, *Annals of Applied Statistics* **2**: 1432–1451.

Ramsay, J. O. (1998). Estimating smooth monotone functions, *Journal of the Royal Statistical Society B* **60**: 365–375.

Ramsay, J. O. and Silverman, B. W. (2005). *Functional Data Analysis*, 2nd ed., Springer, New York.

Rice, J. A. (1984). Bandwidth choice for nonparametric regression, *Annals of Statistics* **12**: 1215–1230.

Robinson, G. K. (1991). That BLUP is a good thing: The estimation of random effects (with discussion), *Statistical Science* **6**: 15–51.

Ruppert, D., Wand, M. P. and Carroll, R. J. (2003). *Semiparametric Regression*, Cambridge, New York.

Schumaker, L. L. (2007). *Spline Functions: Basic Theory, 3rd ed.*, Cambridge University Press, Cambridge, UK.

Smith, M. and Kohn, R. (2000). Nonparametric seemingly unrelated regression, *Journal of Econometrics* **98**: 257–281.

Speckman, P. (1995). Fitting curves with features: semiparametric change-point methods, *Computing Science and Statistics* **26**: 257–264.

Stein, M. (1990). A comparison of generalized cross-validation and modified maximum likelihood for estimating the parameters of a stochastic process, *Annals of Statistics* **18**: 1139–1157.

Tibshirani, R. and Knight, K. (1999). The covariance inflation criterion for adaptive model selection, *Journal of the Royal Statistical Society B* **61**: 529–546.

Tong, T. and Wang, Y. (2005). Estimating residual variance in nonparametric regression using least squares, *Biometrika* **92**: 821–830.

Venables, W. N. and Ripley, B. D. (2002). *Modern Applied Statistics with S, 4th ed.*, Springer, New York.

Wahba, G. (1980). Automatic smoothing of the log periodogram, *Journal of the American Statistical Association* **75**: 122–132.

Wahba, G. (1981). Spline interpolation and smoothing on the sphere, *SIAM Journal on Scientific Computing* **2**: 5–16.

Wahba, G. (1983). Bayesian confidence intervals for the cross-validated smoothing spline, *Journal of the Royal Statistical Society B* **45**: 133–150.

Wahba, G. (1985). A comparison of GCV and GML for choosing the smoothing parameters in the generalized spline smoothing problem, *Annals of Statistics* **4**: 1378–1402.

Wahba, G. (1987). Three topics in ill posed inverse problems, pp. 37–51. In *Inverse and Ill-Posed Problems*, M. Engl and G. Groetsch, eds. Academic Press, New York.

Wahba, G. (1990). *Spline Models for Observational Data*, SIAM, Philadelphia, PA. CBMS-NSF Regional Conference Series in Applied Mathematics, Vol. 59.

Wahba, G. and Wang, Y. (1995). Behavior near zero of the distribution of GCV smoothing parameter estimates for splines, *Statistics and Probability Letters* **25**: 105–111.

Wahba, G., Wang, Y., Gu, C., Klein, R. and Klein, B. E. K. (1995). Smoothing spline ANOVA for exponential families, with application to the Wisconsin Epidemiological Study of Diabetic Retinopathy, *Annals of Statistics* **23**: 1865–1895.

Wang, Y. (1994). *Smoothing Spline Analysis of Variance of Data From Exponential Families*, Ph.D. Thesis, University of Wisconsin-Madison, Department of Statistics.

Wang, Y. (1997). GRKPACK: fitting smoothing spline analysis of variance models to data from exponential families, *Communications in Statistics: Simulation and Computation* **26**: 765–782.

Wang, Y. (1998a). Mixed-effects smoothing spline ANOVA, *Journal of the Royal Statistical Society B* **60**: 159–174.

Wang, Y. (1998b). Smoothing spline models with correlated random errors, *Journal of the American Statistical Association* **93**: 341–348.

Wang, Y. and Brown, M. B. (1996). A flexible model for human circadian rhythms, *Biometrics* **52**: 588–596.

Wang, Y. and Ke, C. (2009). Smoothing spline semi-parametric nonlinear regression models, *Journal of Computational and Graphical Statistics* **18**: 165–183.

Wang, Y. and Wahba, G. (1995). Bootstrap confidence intervals for smoothing splines and their comparison to Bayesian confidence intervals, *Journal of Statistical Computation and Simulation* **51**: 263–279.

Wang, Y. and Wahba, G. (1998). Discussion of "Smoothing Spline Models for the Analysis of Nested and Crossed Samples of Curves" by Brumback and Rice, *Journal of the American Statistical Association* **93**: 976–980.

Wang, Y., Guo, W. and Brown, M. B. (2000). Spline smoothing for bivariate data with applications to association between hormones, *Statistica Sinica* **10**: 377–397.

Wang, Y., Ke, C. and Brown, M. B. (2003). Shape invariant modelling of circadian rhythms with random effects and smoothing spline ANOVA decomposition, *Biometrics* **59**: 804–812.

Wang, Y., Wahba, G., Chappell, R. and Gu, C. (1995). Simulation studies of smoothing parameter estimates and Bayesian confidence intervals in Bernoulli SS ANOVA models, *Communications in Statistics: Simulation and Computation* **24**: 1037–1059.

Wong, W. (2006). Estimation of the loss of an estimate. In *Frontiers in Statistics*, J. Fan and H. L. Koul eds. Imperial College Press, London.

Wood, S. N. (2003). Thin plate regression splines, *Journal of the Royal Statistical Society B* **65**: 95–114.

Xiang, D. and Wahba, G. (1996). A generalized approximate cross validation for smoothing splines with non-Gaussian data, *Statistica Sinica* **6**: 675–692.

Yang, Y., Liu, A. and Wang, Y. (2005). Detecting pulsatile hormone secretions using nonlinear mixed effects partial spline models, *Biometrics* pp. 230–238.

Ye, J. M. (1998). On measuring and correcting the effects of data mining and model selection, *Journal of the American Statistical Association* **93**: 120–131.

Yeshurun, Y., Malozemoff, A. P. and Shaulov, A. (1996). Magnetic relaxation in high-temperature superconductors, *Reviews of Modern Physics* **68**: 911–949.

Yorke, J. A. and London, W. P. (1973). Recurrent outbreaks of measles, chickenpox and mumps, *American Journal of Epidemiology* **98**: 453–482.

Yu, Y. and Ruppert, D. (2002). Penalized spline estimation for partially linear single index models, *Journal of the American Statistical Association* **97**: 1042–1054.

Yuan, M. and Wahba, G. (2004). Doubly penalized likelihood estimator in heteroscedastic regression, *Statistics and Probability Letters* **69**: 11–20.