Robert McCulloch, Curriculum Vitae
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Contact Information:

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University of Chicago
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Current Employment:

Katherine Dusak Miller Professor of Econometrics and Statistics
University of Chicago Booth School of Business.

Positions Held:

2008-2011:
Professor of Statistics
McCombs School of Business
University of Texas at Austin

2001-2007:
Sigmund E. Edelstone Professor of Econometrics and Statistics,
University of Chicago Graduate School of Business

1995-2001:
Professor of Econometrics and Statistics, University of Chicago Graduate School of Business

1989-1994:
Associate Professor of Statistics, University of Chicago Graduate School of Business

1985-1988:
Assistant Professor of Statistics, University of Chicago Graduate School of Business

Education:

BS (Mathematics and Economics) 1981, University of Toronto
MS (Statistics) 1984, University of Minnesota
Ph.D. (Statistics) 1985, University of Minnesota

Elected Fellow, American Statistical Association, June 1997.

Areas of Research Interest:

Bayesian statistical methodology.
Statistical computing.
Machine Learning.

Applications of data-mining and Bayesian methods in Business.

Past Professional Activities

Program chair, section on Statistical Computing, American Statistical Association
Treasurer, International Society for Bayesian Analysis
Associate Editor:
- Journal of the American Statistical Association
- Journal of Econometrics
- Journal of Business and Economic Statistics
- Electronic Journal of Statistics

Grants:

2010-2013:
National Institutes of Health
National Cancer Institute
Grant Number 1RC4CA155846-01
09/27/2010-08/31/2013
"Bayesian Nonparametric Methodology for CER: Instrumental Variables Models".
(with PI Purushottom Laud, Medial College of Wisconsin).

Some Recent Talks (pdf on my webpage):

Put Option Implied Risk-Premia in General Equilibrium under Recursive Preferences
(given by co-author Satadru Hore at summer Econometrics meetings, June 2011)

Choleski Multivariate Stochastic Volatility, U. of Minnesota , May 14 2011.

BART: Bayesian Additive Regression Trees, Rice, Lehmann Syposium, May 11, 2011.

Work in Progress:

Books:

Bayesian Inference in Factor Asset Pricing Models
(with Carvalho, C, and Lopes, H., Chapman & Hall/CRC (2012)).

Bayesian Econometrics: A First Course
(with Carvalho, C, and Lopes, H., Wiley (2012)).

Papers:

On the Long Run Volatility of Stocks
(with Carvalho, C, and Lopes, H.)

BART Algorithms for Large Data Sets Using Parallel Computation
(with Chipman, H., Gattiker, J., Higdon, D., Pratola, M.)

Bayesian Tree Modeling with Functional Constraints
(with Chipman, H., George, E., and Shively, T.)

Bayesian Non-parametric Methods for Instrumental Variable Regression
(with Laud, P.)

Fully Nonparametric Bayesian Ensemble Learning
(with Chipman, H., Dameien, P., and George, E.)

Working Papers:

Bayesian Regression Structure Discovery
(with Edward George and Hugh Chipman)

Cholesky Multivariate Stochastic Volatility
(with Lopes, H. and Tsay, R.)

High Dimensinal Categorical Data Fusion Using Partially Fused Data
(with Zvi Gilula)

Put Option Implied Risk-Premia Under General Equilibrium under Recursive Preferences
(with Satadru Hore and Hedibert Lopes)

Publications:

Discussion of "Statistical Inference: The Big Picture, by Robert Kass", (2011), Statistical Science, 26, 1, 1-9.

"Bayesian Computation in Finance", (2010), In Frontiers of Statistical Decision Making and Bayesian Analysis, (Eds. M.-H., Chen, D.K. Dey, P. Müller, D. Sun, and K. Ye), New York, Springer. (with Satadru Hore, Michael Johannes, Hedibert Lopes, and Nicholas Polson)

"BART: Bayesian Additive Regression Trees", (2010), The Annals of Applied Statistics, 4,1, 266-298. (with Hugh Chipman and Edward George)

"Bayesian Flexible Modeling of Trip Durations", (2010), Transportation Research Part B, 44, 686-698. (with Hugh Chipman, Edward George, and Jason Lemp).

"On the Determination of General Scientific Models with Application to Asset Pricing", (2009), Journal of the American Statistical Association, 104, 485, pages 117-131. (with Ron Gallant)

"A Semi-Parametric Bayesian Approach to the Instrumental Variable Problem", (2008), Journal of Econometrics, 144, 276-305. (with Tim Conley, Chris Hansen, and Peter Rossi)

"Bayesian Ensemble Learning", (2007), Advances in Neural Information Processing Systems 19, Scholkopf, Platt and Hoffman, Eds., MIT Press, Cambridge, MA, 265-272. (with Hugh Chipman and Edward George) This is one of just 25 papers selected from 833 submissions for full oral presentation at this prestigious machine learning conference.

"A Direct Approach to Data Fusion", (2006), Journal of Marketing Research, 43, 1, 73-83. (with Z. Gilula and P. Rossi)

"Bayesian Statistics and Marketing", (2005), Wiley. (with Greg Allenby and Peter Rossi)

"Bayesian Treed Generalized Linear Models", (2003), In Bayesian Statistics 7, (Eds. Bayarri, Berger, Beranardo, Dawid, Heckerman, Smith, West), Clarendon Press, Oxford.

"Bayesian Treed Models", (2002), Machine Learning, 48, 299-320. (with Hugh Chipman and Edward George)

“Practical Implementation of Bayesian Model Selection”, (2001), In Model Selection (P. Lahiri, ed.), 38, 67-116, IMS Lecture Notes. (with High Chipman and Edward George)

“Nonlinearity in High Frequency Financial Data and Hierarchical Models”, (2001), Studies in Nonlinear Dynamics and Econometrics, Vol. 5. (with Ruey Tsay)

“Modelling Covariance Matrices in Terms of Standard Deviations and Correlations, with Application To Shrinkage”, (2000), Statistica Sinica, 10, 4. (with John Barnard and Xiao-Li Meng)

“Hierarchical Priors for Bayesian CART Shrinkage”, (2000), Statistics and Computing, 10, 17-24. (with Hugh Chipman and Edward George)

“Bayesian Analysis of the Multinomial Probit Model with Fully Identified Parameters”, (2000), Journal of Econometrics, 99, 173-193. (with Peter Rossi and Nicholas Polson)

“Bayesian Analysis of Multinomial Probit Model”, (2000), Simulation-Based Inference in Econometrics, (Mariano, Weeks and Schuermann, eds), Cambridge: Cambridge University. (with Peter Rossi)

“Account-Level Modeling for Trade Promotion: An Application of a Constrained Parameter Hierarchical Model”, (1999), Journal of the American Statistical Association , 94, 1063-1073. (with Peter Boatwright and Peter Rossi)

“Bayesian CART Model Search”, (1998), Journal of the American Statistical Society, 93, 935-960. (with Hugh Chipman and Edward George)

“Bayesian Inference for Periodic Regime-Switching Models”, (1998), Journal of Applied Econometics, 13, 2. (with Eric Ghysels and Ruey Tsay)

“Approaches for Bayesian variable selection”, (1997), Statistica Sinica, 7,2, 339-374. (with Edward George)

“Adaptive Bayesian Wavelet Shrinkage”, (1997), Journal of the American Statistical Society, 92, 440, 1413-1421. (with Hugh Chipman and Eric Kolyczyk)

“A Unified Approach to Estimating and Modelling Linear and Nonlinear Time Series”, (1997), Statistica Sinica, 7,2, 451-472. (with Kathy Chen and Ruey Tsay)

“On the Value of Household Information in Target Marketing”, (1996), Marketing Science, 15, 321-340. (with Greg Allenby and Peter Rossi)

“Stochastic Search Variable Selection”, (1996), In “ Practical Markov Chain Monte Carlo”, edited by Gilks, Smith, and Spiegalhalter. Chapman and Hall. (with Edward George)

“Bayes Factors for Testing the Equality of Covariance Matrix Eigenvalues”, (1996), In “Modelling and Prediction”, W. Johnson (ed), New York: Springer, 305-314 (with Peter Rossi).

“Two approaches to Bayesian model selection with applications”, (1996), In “Bayesian Analysis in Statistics and Econometrics: Essays in Honor of Arnold Zellner”, (eds. D. A. Berry, K. M. Chaloner and J. K. Geweke), John Wiley: New York. (with Edward George and Ruey Tsay)

“Bayesian Inference and Portfolio Efficiency”, (1995), Revue of Financial Studies, 8, 1-53. (with Kandel, S., and Stambaugh, R.)

“Hierarchical Modelling of Consumer Heterogeneity: An Application to Target Marketing”, (1995), In “ Case Studies in Bayesian Statistics”, Kass and Singpurwalla (eds), New York: Springer Verlag., 323-350. (with Greg Allenby and Peter Rossi)

“An Exact Likelihood Analysis of the Multinomial Probit Model”, (1994), Journal of Econometrics, 64, 207-240. (with Peter Rossi)

“Bayesian Inference of Trend and Difference Stationarity”, (1994), Econometric Theory, 10, 596-608. (with Ruey Tsay)

“Bayesian Analysis of Autoregressive Time Series via the Gibbs Sampler”, (1994), Journal of Times Series Analysis, 15, 235-250. (with Ruey Tsay)

“Statistical Analysis of Economic Time Series via Markov Switching Models”, (1994), Journal of Times Series Analysis, 15, 523-539. (with Ruey Tsay)

“On Obtaining Invariant Priors”, (1993), Journal of Statistical Planning and Inference, 37, 169-179. (with Edward George)

“Bayesian Analysis of Threshold Autoregressive Models with a Random Number of Regimes”, (1993), Proceedings, 25th Interface meeting between Computer Science and Statistics. (with Ruey Tsay)

“Fitting Regression Models with Unknown Transformations Using Dynamic Graphics”, (1993), The Statistician, 42, 153-160.

“Bayesian Inference and Prediction for Mean and Variance Shifts in Autoregressive Time Series”, (1993), Journal of the American Statistical Association, 88, 968-978. (with Ruey Tsay)

“Variable selection via Gibbs sampling”, (1993), Journal of the American Statistical Association, 88, 881-889. (with Edward George)

“Bayes Factors for Nonlinear Hypotheses and Likelihood Distributions”, (1992), Biometrika, 79, 663-676. (with Peter Rossi)

"A Bayesian Approach to Testing the Arbitrage Pricing Theory", (1991), Journal of Econometrics, 49, 141-168. (with Peter Rossi)

"Posterior, Predictive, and Utility-Based Approaches to Testing the Arbitrage Pricing Theory", (1990), Journal of Financial Economics, 28, 7-38. (with Peter Rossi)

"A Multivariate Generalization of Quantile-Quantile Plots", (1990), Journal of the American Statistical Association, 85, 376-386. (with George Easton)

"Local Model Influence", (1989), Journal of the American Statistical Association, 84, 473-478.

"Information and the Likelihood Function in Exponential Families", (1988), The American Statistician, 42, 73-75.

"Added Variable Plots in Linear Regression", (1987), Technometrics, 29, 427-433. (with Brad Johnson)

"Some Remarks on Allocatory and Separatory Linear Discrimination", (1986), Journal of Statistical Planning and Inference, 14, 323-330.

Recent Students:

Ni Xiao (Chair, PhD, 2011, University of Chicago, Booth School of Business)

Mengta Yang (2010, Master of Science in Statistics, University of Texas, Austin)

Kun-Ho Kim (PhD, 2009, Universithy of Chicago, Department of Economics)

Sandra Shao (chair, PhD, 2008, University of Chicago, Department of Economics)

Thomas Chevrier (chair, PhD, 2007, University of Chicago, Graduate School of Business) (State Street Global Markets, Research Department)

Satadru Hore (chair, PhD, 2006, University of Chicago, Graduate School of Business) (Federal Reserve Bank, Boston)