RESUME - Colin Mark Gallagher

PERSONAL DATA

Associate Professor
Department of Mathematical Sciences
Clemson University
Clemson, SC 29634
864/656-2286

EDUCATION

Ph.D., University of California, Santa Barbara, June, 1998, Statistics
M.A., University of California, Santa Barbara, June, 1994, Statistics
B.S., California State University, Sonoma, January, 1993, Applied Mathematics

PROFESSIONAL EXPERIENCE

Clemson University, 2006-Present, Associate Professor
Clemson University, 1998 – 2006, Assistant Professor of Mathematical Sciences
California State University, Chico, 2002-2004, Assistant Professor of Statistics
University of California, Santa Barbara, 1997-1998, TA; 1993-1997, GRA

CONSULTING EXPERIENCE

Casio, Plano, TX (1999), Recommended improvements to the CFX-9850Ga+ calculator.
Jamison Watts, CSUC Department of Biological Sciences (2003), assessed the effects of logging on the Northern Goshawk.
Steve Hannigan-Downs, Professor, CSUC Department of Physical Education (2002), modeled likelihood of physical injury to hospitalized mentally retarded patients.

MEMBERSHIPS

American Statistical Association (ASA)
National Council on Teachers of Mathematics (NCTM) (2004)

PROFESSIONAL ACTIVITIES

ASA South Carolina Chapter, Vice President (2005-2008)
ASA South Carolina Chapter, Secretary/Treasurer (2001)
Southern Regional Council on Statistics, Clemson University Representative 2008-Present
SRCOS summer research conference (2011), co-chair research/arrangements committees
Referee: *The American Statistician, Annals of Applied Statistics, Applied Stochastic Models in Business and Industry, Communications in Statistics: Theory and Methods, Computational Statistics and Data Analysis, Environmetrics, Geophysical Research Letters, IEEE Signal Processing, Involve, Journal of the American Statist. Association, Journal of Climate, Journal of Computational & Graphical Statistics, Journal of Nonparametric Statistics, Journal of Statistical Computation and Simulation, Journal of Statistical Planning and Inference, Journal of Time Series Analysis, Scandinavian Journal of Statistics, Urban Studies*.
Reviewer: NSA-AMS Grant Program

PUBLICATIONS

Refereed Journal Publications

Adler, R. J., Feldman, R. and Gallagher, C. "Analysing Stable Time Series", in *A Practical Guide to Heavy Tails* (1998), 133-158, Birkhaüser, Boston.

Gallagher, C. "A Method for Fitting Stable Autoregressive Models using the Covariation", *Statistics and Probability Letters*, **53**, 381-390 (2001).

Gallagher, C. "Testing for Linear Dependence in Heavy-Tailed Data",*Communications in Statatistics: Theory and Methods*, **31**, 4, 611-623 (2002).

Gallagher, C. "Order Identification for Gaussian Moving Averages using the Covariation". *Journal of Statistical Computation and Simulation*, **72**, 4, 279-284 (2002).

Kulasekera, K. B. and Gallagher, C. "Variance Estimation in Nonparametric Multiple Regression", *Communuications in Statistics: Theory and Methods*, **31**, 8, 1373-1383 (2002).

Gallagher, C. and Okuyama, T. "Some Differences in the Rates of Convergence of the Sample Covariance and Covariation Functions", *Interstat*, Nov. (2002) .

Kulasekera, K.B. and Gallagher, C. "Comparisons of two and three dimensional regression surfaces". *International Mathematical Journal*, **3**, 1, 73-100 (2003).

Gallagher, S. and Gallagher, C. "Discrimination of Chinook and coho salmon and steelhead redds and evaluation of the use of redd data for estimating escapement in several unregulated streams in Northern California", *North American Journal of Fisheries Management* 25, 1 284-300 (2005).

Gallagher, C. "Detecting dependence in heavy-tailed time series using portmanteau-type dependence tests", *International Mathematical Forum***,** Vol. 1, no. 9-12, 455-470 (2006)**.**

R. Lund, X. Wang, Q. Lu, J. Reeves, C. Gallagher, and Ya. Feng, "Changepoint Detection in Periodic and Autocorrelated Time Series", *Journal of Climate*, 20, 5178–5190 (2007).

A. Garmestani, C.R. Allen, C.M. Gallagher and J.D. Mittelstaedt, "Departures from Gibrat's law, discontinuities and city size distributions". *Urban Studies*, vol. 44, 1997-2007 (2007).

Garmestani, A.S., C.R. Allen and C.M. Gallagher, "Power laws, discontinuities and Regional city size distributions". *Journal of Economic Behavior & Organization* Volume 68(1), 209-216 (2008) .

Gallagher, C. and Tunno. F "A small sample confidence interval for autoregressive parameters". *Journal of Statistical Planning and Inference* 138 (12) 3858-3868 (2008).

Qi Zheng, K.B. Kulasekera and C. Gallagher "Local adaptive smoothing in kernel regression estimation" *Statistics & Probability Letters*, Volume 80, 540-547 (2010).

T.Fisher and X. Sun and C.Gallagher, "A new test for sphericity of the covariance matrix for high dimensional data", *Journal of Multivariate Analysis*, 101 (10), 2554 – 2570 (2010).

Robbins M., Gallagher C., Lund R. and Aue A., "Mean shift testing with correlated data", *Journal of Time Series Analysis*. 32 (5), 498-511 (2011).

Robbins M. , Lund R. , Gallagher C., and Lu, "A change-point analysis of atlantic tropical cyclones", *Journal of the American Statistical Association*, Vol. 106, No. 493 89-99 (2011).

C. Kuruwita, K.B. Kulasekera and C. Gallagher, "Generalized varying coefficient models with unknown link functions", *Biometrika* 2011 98: 701-710 (2011).

B. Fralix and C. Gallagher, "A new proof of the Wiener-Hopf factorization via Basu's theorem", *J. Appl. Probab*. Volume 49, Number 3 (2012),.

F. Tunno, C. Gallagher and R. Lund, "Arc length tests for equivalent autocovariances", *Jo of Statistical Computation and Simulation* 82 (12): 1799-1812 (2012).

T. Fisher and C. Gallagher, "New Weighted Portmanteau Statistics for Time Series Goodness-of-Fit Testing", *Journal of the American Statistical Association*, vol. 107 No. 498: 777-787 (2012).

Gallagher, C. Robbins, M. and Lund R., "Changepoint detection in daily precipitation data", *Environmetrics*: Special issue: Advances in Statistical Methods for Climate Analysis 23 (5): 407-419 (2012).

Qi Zheng, C. Gallagher and K.B. Kulasekera, "Adaptive penalized quantile regression for high dimensional data" *Journal of Statistical Planning and Inference* (2013); Volume 143, Issue 6, Pages 1029–1038.

Gallagher, C. Robbins, M. and Lund R.(2013), "Changepoint detection in climatic time series with long-term trend", *J. Climate*, 26, 4994–5006.

Qi Zheng, C. Gallagher and K.B. Kulasekera, "The growth rate of significant regressors for high dimensional data" *Statistics & Probability Letters*, vol. 83, issue 9, pages 1969-1972 (2013).

Qi Zheng, C. Gallagher and K.B. Kulasekera, "Adaptively weighted kernel regression" *Journal of Nonparametric Statistics*, To appear (2013).

T. Wickrmarachchi, C. Gallagher, and R. Lund, "Asymptotics for the arc length of a multivariate time series" accepted to *Applied Stochastic Models in Business and Industry* (2013).

Submitted Papers

J. Shen, C. Gallagher, and Q. Lu, "Detection of multiple changepoints in a linear model", revised for *Applied Statistics* (2013).

D. Wang, C. Gallagher, C. McMahan and K.B. Kulasekera, "Semiparametric group testing models" revised for *Biometrika* (2013).

C. Gallagher and T. J. Fisher, "On Weighted Portmanteau Tests for Time Series Goodness-of-fit" submitted to *Journal of the Royal Statistical Society* (August 2013).

Wang, D., McMahan, C., and Gallagher, C. "A general regression framework for group testing data that incorporates pool dilution effects" submitted to *Biometrics* (2013).

T. D. Wickramarachchi, C. M. Gallagher, and J. E. Brown, "Inference for Linear Regression with Autocorrelated Errors" submitted to *Communications in Statistics* (2013).

C. Gallagher, T. J. Fisher and Jie Shen, "A Cauchy Estimator Test for Autocorrelation", submitted to *Journal of Statistical Computation and Simulation* (2013).

C. Kuruwita, C. Gallagher, and K.B. Kulasekera, "Testing equality of nonparametric quantile regression functions" in revision (2013+).

Conference Proceedings (Reviewed)

B. Murphy, S. Soldavini, and C. Gallagher, "Distributions of Concentration Limits for the Source Term in Performance Assessments" *Proceedings of the Symposium on the Scientific Basis for Nuclear Waste Management* Materials Research Society Spring Meeting (2004).

Conference Proceedings (refereed abstract).

Gallagher, C. "Approximating Heavy Tailed Processes with Stable Autoregressions using the Empirical Covariaton Function". Proceedings Applications of Heavy Tailed Distributions in Economics, Engineering and Statistics, American University, Washington, DC, (June/1999).

Gallagher, E. and Gallagher, C. "Have You Talked to a Child About Statistics Recently? Interviews, Statistics, and Teacher Preparation." Proceedings of the Hawaii International Conference on Statistics and Related Fields, (June/2003).

Other Scholarly Publications

Gallagher, C. Diagnostic Checks in Time Series (Book Review), *Journal of the American Statistical Association,* 100, 1091-1091 (2005).

Gallagher, C. Extending the Linear Model with R, (Book Review), *Journal of the American Statistical Association,* 102, Number 480, 1477-1477 (2007).

PRESENTATIONS

Invited Presentations

C. Gallagher, *The empirical autocovariation function and AR processes*, Annual meeting of the South Carolina Chapter of the ASA, Columbia, SC (April 1999).

C. Gallagher, *A new perspective on point and interval estimation for a first-order autoregressive model*, Summer Research Conference on Statistics, Clemson University, Clemson SC (June 2005).

C. Gallagher, *Accounting for Changepoints in Temperature Series*, International Statistical Institute (ISI) 2009, Durban, South Africa (August 2009).

Colloquia/contributed presentations (Presentations made by other authors not included)

Gallagher C. "Adaptively weighted kernel regression", University of South Carolina Department of Statistics (September 2013).

Gallagher, C. and T. J. Fisher, "Weighted Portmanteau Tests", National Bureau of Economic Research-NSF Time Series Conference, Texas A\&M (October 2012).

Gallagher C. "Weighted Portmanteau Tests", Joint Statistical Meetings (August 2012).

Gallagher, E. and Gallagher, C. "Have You Talked to a Child About Statistics Recently? Interviews, Statistics, and Teacher Preparation." Hawaii International Conference on Statistics and Related Fields, (June 2003).

C. Gallagher, "How large is large?" CSUC Dept. of Math colloquim (May 2003).

C.Gallagher (with E. Gallagher), "Statistical fallacies", CSUC Math Club talk (April 2004).

C. Gallagher, Estimating variance in nonparametric multiple regression, UC Santa Barbara Dept. of Statistics (March 2003).

S. Gallagher and C. Gallagher, Discrimination Of Coho And Steelhead Redds And Comparison Of Methods For Estimating Spawning Populations In Several Unregulated Streams In Mendocino County, California, WDAFS/CA-NV 2003 Annual Conference

C. Gallagher, "Covariation: A useful time series modeling tool?" UC Davis Department of Statistics (November 2002).

C. Gallagher, "A large sample independence test for finite mean processes", University of Virginia, (March 2001).

C. Gallagher, "Modeling sea surface temperatures using a stable autoregression", University of North Carolina at Wilmington, (March 2000).

C. Gallagher, "Analyzing stable time series", Department of Statistics and Applied Probability Colloquium, University of California, Santa Barbara (November 1996).

Gallagher, C. "Approximating Heavy Tailed Processes with Stable Autoregressions using the Empirical Covariaton Function". Applications of Heavy Tailed Distributions in Economics, Engineering and Statitistics, American University, Washington, DC, (June/1999).

SPONSORED RESEARCH

Funded Grants

Nonparametric Regression for Censored Data, CSU, Chico Research Foundation Summer Scholar award, PI, $4,000 ($4,000) (June-July 2003).

REU Site: *Research Experiences in Mathematics for Undergraduates and Teachers*, NSF, Co-PI, $199,516 (99,758) (7/2004-9/2006).

Pending Grants

Biomarker Evaluation: Cost Effective Analysis Based on Pooled Assessments; submitted to National Institutes of Health/DHHS, Co-PI $146,605 ($73,302) (9/1/2013-9/1/2015)

RTG: Statistical Methods for Climate and the Environment; Submitted to NSF, PI, $588,080 ($147,020) (1/1/2014-12/31/2016)

Other Grant Activity (not funded)

Collaborative Research: Adaptive Weighting for Statistical Methods; submitted to NSF, PI, $125,618 (7/1/2013-6/30/2016).

The Statistical Properties of the Test of Significant Toxicity; Sponsored by API (American Petroleum Institute) $185,436 ($70,465) (1/1/2013-1/1/2014).

Time Series Methodology for Risk and Climate, submitted to NSF, PI, $243,183 (5/1/2012-5/1/2015).

Statistical Collection, Organization, and Analysis of Evacuation Data; Sponsored by U.S. DEPARTMENT OF COMMERCE ,PI, $182,364, (8/1/2006- 7/31/2009)

MCTP: Summer Workshop for Incoming Mathematics students (SWIM), submitted to NSF, co-PI, $1,128,697 ($451,478) (6/2006-5/2011).

EMSW21 RTG: Research Mentoring Groups in Probability and Statistics, Principal Investigator, submitted to the NSF in October 2004, $1,228,993 ($430,137).

Directions In Statistics Education (DISE): Teacher Preparation at the CSU, submitted to the CSU Institute for Teaching and Learning in October 2003, co-PI, $14,901 ($7,450).

CAREER: Probabilistic and Statistical Thinking (PAST), submitted to NSF (July 2003), PI $456,229($456,229).

Comparison of Regression Curves with Censored Responses, submitted to NIH (2002); resubmitted (2003), senior personnel $145,000 ($14,500).

STUDENT ADVISING

Masters Graduates (Major advisor/co-advisor)

Toshinori Okuyama (MS), "Some bayesian estimates of recovery rates for Mallards in North and South Carolina," (May, 2001).

Jennifer Rhorer (MS), "A Brief Look at Creating Surveys and Analyzing Survey Data," (December, 2006).

Michael Robbins (MS), "Change-Point Tests for Precipitation Data" (May, 2007).

Angela Starret (MS), "A statistical Approach to Loan Prepayments" (December 2007).

Tharanga Wickramarachchi (MS), "A critical assessment of GARCH models" (May 2008).

Yicong Liu (MS) co-advised with K.B. Kulasekera, "A data based approach to select the tuning parameter for adaptive LASSO (July 2008).

Qi Zheng (MS) co-Advised with K.B. Kulasekera "Local adaptive smoothing in kernel regression estimation" (August 2009)

Yifang Li (MS) co-advised with K.B. Kulasekera "Shrinkage Estimation in Partially Linear Models with Measurement Error" (August 2010)

Jeremy Brown (MS) "Inference for Linear Regression with Correlated Errors" (May 2010)

Jie Shen (MS), "Detection of Multiple Changepoints Using Multivariate Student's t Simultaneous Bounds and Adaptive Lasso" (August 2010)

Adam Mosley (MS) "Modeling the National Monthly Housing Starts with the National Monthly Unemployment" May (2011)

Josh Crunkleton (MS) "Analysis of POLYMOD Social Contact Rates " May (2012)

Durga Kuthal (MS) "Forecasting Monthly Unemployment Rates " August (2012)

Doctoral Graduates (Major advisor/co-advisor)

Ferebee Tunno (PhD), "Time Series Analysis: a new look at some old problems" (May 2009)

Michael Robbins (PhD) *co-advised with Robert Lund*, "Change Point Analysis: Asymptotic Theory and Applications" (August 2009)

Chinthaka Kuruwita (PhD) *co-Advised with K.B. Kulasekera*, "Nonparametric Methods in Varying Coefficient Models and Quantile Regression Models" (May 2011)

Tharanga Wickramarachchi (PhD), "Asymptotics for the arc length of a multivariate time series" (Dec 2012)

Qi Zheng (PhD), "Robust Efficient Estimation in High Dimensional Data" (May 2013)

Current Graduate Advising (Major advisor or Co-advisor)

Jie Shen (PhD) (December 2013)

Dewei Wang (PhD) *co-advisor with Chris McMahan* (May 2014)

Yan Lui (PhD) *co-advisor with Chris McMahan* (May 2016)

Tao Yang (PhD) (May 2016)

Josh Crunkelton *co-advisor with Pat Gerrard* (PhD) (May 2016)

Caroline Burch (MS) (May 2014)

Andrew Schwarzer (MS) (May 2014)

Dilhani Marasinghe (MS) (May 2014)

Elaine Sotherden *co-advisor with Julia Sharp* (MS) (May 2014)

Jinghua Zhao (MS) (May 2014)

Undergraduate Research Projects

Wes Harrison, "Bias in autocorrelation estimates", supported by the CSU, Chico College of Natural Sciences, summer 2003.

Beth Bowers and Pamela Wentz, "Portfolio Optimization: MAD vs. Markowitz", NSF-sponsored (Award #0354174) Research Experiences for Undergraduates and Teachers at CSU, Chico, summer 2005.

Travis Loux, Jeremy Gladstone and Mike Workman, "Detecting outliers from a normal distribution," NSF-sponsored (Award #0354174) Research Experiences for Undergraduates at CSU, Chico, summer 2005.

Ryan Spurrier, "Small sample tests in time series regression" Clemson University honors research project, 2007/2008.

Greg Jansen, "Time series analysis of baseball salaries" Clemson University honors research project, 2010/2011.

TEACHING

Courses Taught

MTHSC 301, Statistical Methods I, F04.
MTHSC 302, Statistics for Science and Engineering, S99, F99, F00, S01, F01, F05, F07, F08, F09.
MTHSC 309, Statistics for Economics and Business: S2008
MTHSC 400, Introduction to Probability: F98, S99, F99, F00, F04, F06, S08, SU09, F10.
MTHSC 407, Regression and Time Series: S02, S05, S06, S08, S09, S10, S12, S13.
MTHSC 441, Introduction to Stochastic Models: S07.
MTHSC 800, Probability: F99, Sum10, F11.
MTHSC 801, Theory of Linear Models I: F07, F09, F10, F12.
MTHSC 802, Theory of Linear Models II: S06, S11.
MTHSC 804, Introduction to Mathematical Statistics: Su06, Su07.
MTHSC 805, Data Analysis: F06.
MTHSC 809, Time Series Analysis: S00, S02, S05, S06, S08, S10, S12.
MTHSC 981, Special Topics in Statistics: S09, F11.
MATH 05, Introductory Statistics (CSUC),: F02.
MATH 47, Business Statistics (CSUC): S04.
MATH 103, Conceptual Statistics (CSUC): S03, S04.
MATH 105, Mathematical Statistics (CSUC): F02, S03.
MATH 205, Advanced Mathematical Statistics (CSUC): F03.

Course curricular and professional development

Team Captain at the first TEAMS (Teacher Education: Assessment, Methods, and Strategies): Planning the Statistical Education of Future Teachers Conference in Athens, GA, (October/November 2003).

Redesign of MATH 103 (Conceptual Statistics) to meet new California guidelines for the statistical preparation of secondary mathematics teachers at CSU Chico, Spring 2004.

Development (co-designing and team teaching with a mathematics educator) of new graduate course in statistics education for the Masters in Mathematics Education program at CSU Chico, Summer 2004.

Participant in NSF-sponsored A Data-Oriented, Active Learning, Post-Calculus Introduction to Statistical Concepts, Applications, and Theory (ISCAT) conference at California Polytechnic University, San Luis Obispo (June 2004).

Participant in NSF-funded Mentoring Workshop University of Arizona, Tucson, AZ (December 2004)

Co-developed (with N. Calkin) bridge course for incoming graduate students (co-taught for first two summers (2006/2007)

Developed data base management course for graduate students which ran three times as MTHSC 981 (2009-2011)

UNIVERSITY AND PUBLIC SERVICE

Committees

Department: Chair search committee 2012-2013
Math Science Council, 2008-2012
Graduate Affairs Committee 2011-2012
Statistics Sub-Faculty Coordinator, 2005-2007.
Graduate Affairs Committee, 2005-2007; 2012-2013.
Undergraduate Affairs, 2006-2007
Statistics Hiring Committee (8 years)
Math Education Exploration Committee 2007
EXST to MTHSC course transition committee 2010-2011
CSUC Department Curriculum Committee, F02, S03, **chair** F03.
CSUC Department Scholarship Committee, S03.
CSUC Department RTP Revision Committee, **chair** F02.
CSUC, Applied Math Hiring Committee, F03.

Updated August 30, 2013