

CURRICULUM VITAE

KOFI PLACID ADRAGNI, PhD

EDUCATION

PH.D. 2009 University of Minnesota, Statistics
M.S. 2006 University of Minnesota, Statistics
B.S. 1996 Université de Lomé, Togo, Physics

EXPERIENCE IN HIGHER EDUCATION

2011 – Present

UNIVERSITY OF MARYLAND, BALTIMORE COUNTY
DEPARTMENT OF MATHEMATICS & STATISTICS
Assistant Professor

- Taught statistics courses to undergraduate and graduate students
- Academic Advisor for three graduate students
- Chaired, or served on doctoral and master's committees for eleven graduate students
- Mentored 24 students on Research Experience for Undergraduate (REU) on real-world applications of statistical methodologies in partnership with academicians and industry researchers.
- Consulted and collaborated with researchers in biochemistry and biological sciences.

August 2010 – May 2011

UNIVERSITY OF IOWA
DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
Visiting Assistant Professor

- Taught three statistical theory and one regression methods courses to a total of 130 undergraduate students

September 2009 – August 2010

UNIVERSITY OF ALABAMA AT BIRMINGHAM
DEPARTMENT OF BIOSTATISTICS
Post Doctoral Fellow

- Worked on dimension reduction problems inherent to genetic datasets
- Analyzed DNA datasets and wrote computer code for data analysis

May – August 2009

NATIONAL RENEWABLE ENERGY LABORATORY
GOLDEN, COLORADO
Visiting Scholar

- Analyzed integrated microarray and metabolic datasets on biomasses alfalfa and poplar in a study for their yield on biofuel
- Instructed on the use and implementation of Orthogonal Partial Least Squares method
- Implemented software for dimension reduction methodologies in regression

January 2004 - May 2009

UNIVERSITY OF MINNESOTA

SCHOOL OF STATISTICS

Research Assistant (June 2007 - May 2009)

- Developed a novel variable selection method in large p small n regression contexts
- Created a novel method for prediction with the use of principal fitted components
- Supervised by Professor Dennis Cook

Graduate Instructor/Teaching Assistant (January 2004 - May 2007)

- Conducted lectures for graduate and undergraduate students
- Supervised teaching assistants
- Designed and conducted statistical laboratory sessions
- Taught statistical software including R, MacAnova, Arc

Statistical Consultant - Statistical Consulting Clinic (September 2005-December 2005)

- Provided statistical consulting service to University researchers
- Consulted on topics including mixed effects models, Bayesian modeling, experimental design, statistical computing, for researchers in plant genomic, poultry research, education, food science, among others

GRANTS, RESEARCH SUPPORT AND/OR FELLOWSHIPS

Adragni, Kofi Placid (Principal), "Bayesian Principal fitted Components for Sufficient Dimension Reduction" (Funded) UMBC Summer Fellowship Funds, Summer 2012: \$6000

Adragni, Kofi Placid (Principal), "Extended Principal Fitted Components Models and an R package for Dimension Reduction" (Funded) UMBC Summer Fellowship Funds, Summer 2013: \$6000

Adragni, Kofi Placid (Principal), "Adapt PFC methodologies to complex high-dimensional data in the context of studying protein dynamics in molecular simulations," Grant (Funded), University of Maryland, Baltimore County, Fiscal Year 2014: \$20,000.00

Peercy, Bradford E. (Co-Principal), Gobbert, Matthias K (Principal), Neerchal, Nagaraj K (Co-Principal), Adragni, Kofi Placid (Co-Principal), "REU Site: Interdisciplinary Program in High Performance Computing," Grant (Funded), Sponsored by NSF, Federal, \$512,167.00. (February 15, 2015 - February 14, 2018).

Gobbert, Matthias K (Principal), Neerchal, Nagaraj k (Co-Principal), Peercy, Bradford E. (Co-Principal), Adragni, Kofi Placid (Co-Principal), "REU Site: Interdisciplinary Program in High Performance," Grant (Funded), Sponsored by NSA, Federal, \$179,434.00. (May 19, 2015 - May 18, 2016).

PH.D. STUDENTS

MENTORSHIP

Xiaoshu Feng (Expected 2017) Co-advised (with Dr. Mathew)

Elias Al-Najjar	Thesis: Extensions of Cook's Principal Fitted Components for Sufficient Dimension Reduction (Committee Chair, 2015)
Moumita Karmakar	Thesis: Variable Selection in High Dimensional Complex Data and Bayesian Estimation of Reduction Subspaces (Committee Chair, 2015)

COMMITTEE MEMBER FOR

Marilena Flouri	(PhD, 2016)	Ginto Pottackal	(PhD, 2015)
Amanda R. Plunkett	(PhD, 2015)	Malick Mbodj	(PhD, 2014)
Justin Jacobs	(PhD, 2014)	Jonathan McHenry	(PhD, 2014)
Sungwoo Choi	(PhD, 2014)		

MASTER'S STUDENTS

Jia-Ern Pai	Thesis: Prediction Performance of Single Index Principal Fitted Component Models (Mentor and Committee Member, Master's, 2012)
Navneet Sushon	(Committee member, 2012)

UNDERGRADUATE STUDENTS

Ephraim Alfa, Huiyi Chen, Kristen Hansen, and Mathew Prindle – *Research Experience for Undergraduates - Interdisciplinary Program in High Performance Computing* (Summer 2016; Mentor)

Ely Biggs, Tessa Helble, George Jeffreys, and Amit Nayak – *Research Experience for Undergraduates - Interdisciplinary Program in High Performance Computing* (Summer 2015; Mentor)

Trevor V. Adriaanse, Meshach Hopkins, Rebecca Rachan, and Subodh R. Selukar – *Research Experience for Undergraduates - Interdisciplinary Program in High Performance Computing* (Summer 2015; Mentor)

Nancy Hong, Emily Jasien, Christopher Pagan, and Daniel Xie – *Research Experience for Undergraduates - Interdisciplinary Program in High Performance Computing* (Summer 2014; Mentor)

William J. Bailey, Claire A. Chambless, Brandynne M. Cho, and Jesse D. Smith – *Research Experience for Undergraduates - Interdisciplinary Program in High Performance Computing* (Summer 2013; Mentor)

Jeremy Bejarano, Koushiki Bose, Tyler Brannan, Anita Thomas – *Research Experience for Undergraduates - Interdisciplinary Program in High Performance Computing* (Summer 2011, Mentor)

PUBLICATIONS**PEER-REVIEWED ARTICLES**

[1] Elias Al-Najjar and Kofi P. Adragni (2017), "Sufficient Dimension Reduction Constrained Through Sub-Populations" *Computational Statistics & Data Analysis*, vol. 111, pages = 131--144, issn = 0167--9473, doi = <http://dx.doi.org/10.1016/j.csda.2017.02.008>

- [2] Kofi P. Adragni and Mingyu Xi, "Pruning a sufficient dimension reduction with a p-value guided hard-thresholding." *Statistics: A Journal of Theoretical and Applied Statistics* ahead-of-print (2015): 1-17.
- [3] Kofi P. Adragni, Elias Al-Najjar, Sean Martin and Sai Kumar Popuri (2015), "Groupwise Sufficient Dimension Reduction with Principal Fitted Components", *Journal of Computational Statistics*, 1-19
- [4] Kofi P. Adragni, Moumita Karmakar (2015). A Sequential Test for Variable Selection in High Dimensional Complex Data, *Computational Statistics & Data Analysis*, Vol. 81, pp. 107–120
- [5] Kofi P Adragni (2014). Independent screening in high-dimensional exponential family predictors' space, *Journal of Applied Statistics*, doi = 10.1080/02664763.2014.949640, <http://dx.doi.org/10.1080/02664763.2014.949640>
- [6] Kofi P. Adragni and Andrew M. Raim (2014). LDR: An R Software Package for Likelihood-Based Sufficient Dimension Reduction, *Journal of Statistical Software*, Vol. 61, (3).
- [7] Richard E Kennedy, Kofi P Adragni, Hemant K Tiwari, Jenifer H Voeks, Thomas G Brott, and George Howard (2013). Risk-stratified imputation in survival analysis, *Clinical Trials*, 0: 1-10. doi: 10.1177/1740774513493150
- [8] Kofi P. Adragni, R. Dennis Cook and Seongho Wu (2012). GrassmannOptim: An R Package for Grassmann Manifold Optimization, *Journal of Statistical Software*, Vol. 50, (5), pp 1-18, <http://www.jstatsoft.org/v50/i05>
- [9] Kofi P. Adragni and R. Dennis Cook (2009). Sufficient Dimension Reduction and Prediction in Regressions, *Phil. Trans. Royal Soc. A*, November 13, 2009; 367(1906): 4385 - 4405.

NON-REFEREED INVITED DISCUSSION

- [10] Adragni, K. P., and R. D. Cook. "Discussion on the "Sure Independence Screening for Ultrahigh Dimensional Feature Space" by Jianqing Fan and Jinchi Lv (2007)." *Journal of the Royal Statistical Society B* 70.5 (2008): 893.

SOFTWARE PACKAGES

- [11] Kofi P. Adragni and Andrew M. Raim (2012), R package for Likelihood-Based Dimension Reduction <https://CRAN.R-project.org/package=ldr>
- [12] Kofi P. Adragni and Seongho Wu (2010), R package for Grassmann Manifold Optimization <https://CRAN.R-project.org/package=GrassmannOptim>
- [13] Sean Martin, Andrew Raim, Wen Huang, and Kofi Adragni (2016), R package for Riemannian Manifold Optimization <https://CRAN.R-project.org/package=ManifoldOptim>

ARTICLES SUBMITTED FOR PUBLICATION

[14] Kofi Placid Adragni, Andrew M Raim, Elias Al-Najjar, “Minimum Average Deviance Estimation for Sufficient Dimension Reduction” (submitted)

[15] Sean Martin, Andrew M. Raim, Wen Huang, Kofi P. Adragni, “ManifoldOptim: An R Package for Riemannian Manifold Optimization” (submitted)

MANUSCRIPTS IN PROGRESS

[16] Kofi Placid Adragni, “Covariates-Contributed Sufficient Dimension Reduction of Features in the Presence of Dependent Observations”

NON-REFEREED UNDERGRADUATE TECHNICAL REPORTS**RESEARCH EXPERIENCE FOR UNDERGRADUATES**

Interdisciplinary Program in High Performance Computing

UMBC High Performance Computing Facility

(Reports at <http://hpcf.umbc.edu/publications/>)

[17] Ephraim Alfa, Huiyi Chen, Kristen Hansen, Mathew Prindle, Sai Popuri, Nadeesri Wijekoon, Kofi Adragni (2016). Using Historical Data for Retrospective Prediction of Rainfall In the Midwest. Technical Report HPCF

[18] Ely Biggs, Tessa Helble, George Jeffreys, Amit Nayak, Elias Al-Najjar, Kofi P. Adragni, and Andrew Raim (2015). Numerical evaluation of minimum average deviance estimation in ultra high dimensional Poisson regression. Technical Report HPCF-2015-21.

[19] Trevor V. Adriaanse, Meshach Hopkins, Rebecca Rachan, Subodh R. Selukar, Elias Al-Najjar, Kofi P. Adragni, and Nusrat Jahan (2015). Statistical analysis of a case-control Alzheimer’s disease: a retrospective approach with sufficient dimension reduction. Technical Report HPCF-2015-23.

[20] Nancy Hong, Emily Jasien, Christopher Pagan, Daniel Xie, Zana Coulibaly, Kofi P. Adragni, and Ian F. Thorpe (2014). Nonlinear measurers of correlation and dimensionality reduction with application to protein motion. Technical Report HPCF-2014-11.

[21] Matthew G. Bachmann, Ashley D. Dyas, Shelby C. Kilmer, Julian Sass, Andrew Raim, Nagaraj K. Neerchal, Kofi P. Adragni, George Ostrouchov, and Ian F. Thorpe (2013). Block cyclic distribution of data in pbdR and its effects on computational efficiency. Technical Report HPCF-2013-11.

[22] William J. Bailey, Claire A. Chambless, Brandynne M. Cho, Jesse D. Smith, Andrew M. Raim, Kofi P. Adragni, and Ian F. Thorpe (2013). Identifying nonlinear correlations in high dimensional data with application to protein molecular dynamics simulations. Technical Report HPCF-2013-12.

[23] Jeremy Bejarano, Koushiki Bose, Tyler Brannan, Anita Thomas, Kofi Adragni, Nagaraj K. Neerchal, and George Ostrouchov (2011). Sampling within k-means algorithm to cluster large datasets. Technical Report HPCF-2011-12.

PROFESSIONAL PRESENTATIONS (NON-REFEREED)

- [1] Minimum Average Deviance Estimation for Sufficient Dimension Reduction
Invited Speaker; International Conference in Mathematics and Its Applications
Mahidol University, Bangkok, Thailand; December 2016

- [2] MADE: Local Generalized Linear Models with Sufficient Dimension Reduction
Invited Speaker; International Conference on Recent Developments in Applied Statistics
Yaounde, Cameroon; March 2016

- [3] Sufficient Dimension Reduction for Correlated Data
Invited Speaker; International Indian Statistical Association Conference
Pune, India; December 2105

- [4] Dealing with Big Data in Regression: A Sufficient Dimension Reduction Approach
Invited Speaker; 9th International Triennial Calcutta Symposium on Probability and Statistics
Calcutta, India; December 2105

- [5] Sufficient Dimension Reduction for Correlated Data
Colloquia - Invited Speaker; Department of Statistics, Temple University
Philadelphia, Pennsylvania; November 2015

- [6] Variable Selection and Prediction for High Dimensional Complex Data
Colloquia - Invited Speaker; Department of Mathematics, James Madison University
Harrisonburg, Virginia; October 2015

- [7] A Selective Review of Dimension Reduction Methods in Regression
Invited Speaker; International Conference on Statistics
Jimma, Ethiopia; March 2015

- [8] Sufficient Dimension Reduction Constrained Through Sub-Populations
Invited Speaker; Joint Statistical Meeting
Boston, MA; August 2014

- [9] Variable Selection for High Dimensional Complex Data
Invited Speaker; International Chinese Statistical Association Conference, Hong Kong
Hong Kong; December 2013

- [10] A Selective Review of Sufficient Dimension Reduction Methods in Regression
Invited Speaker; Environmental Protection Agency
Washington DC; September 2013

- [11] Cook's PFC for Variable Selection in High Dimensional Complex Data
Colloquia - Invited Speaker; Procter and Gamble
Cincinnati, OH; January 2013

- [12] Variable Selection in High Dimensional Low Sample Size Regressions
Colloquia - Invited Speaker; Department of Mathematics and Statistics, University of Windsor
Windsor, ON, Canada; September 2012

[13] Variable Selection in High Dimensional Low Sample Size Regressions
Colloquia - Invited Speaker; Division of Biostatistics, University of Maryland Baltimore
 Baltimore, MD; September 2012

[14] Principal Fitted Components Model with a Heterogeneous Error Structure
Contributed Talk; Joint Statistical Meeting
 San Diego, CA; July 2012

[15] Sufficient Dimension Reduction of Single Nucleotide Polymorphisms Datasets
Colloquia - Invited Speaker; Biostatistics Department, University of Iowa
 Iowa City, Iowa; November 2010

[16] Sufficient Dimension Reduction of Single Nucleotide Polymorphisms Datasets
ENAR Spring Meeting-- Oral Presentation
 New Orleans, LA; March 2010

SERVICE

COLLEGE

Joined the Maryland Mathematics Reform Initiative task force to design developmental course for non-stem majors (2015-2016)

DEPARTMENT

Probability & Statistics Day Conference	(2012-2015)
Weekly Statistics Colloquium	(2013-2015)
Interdisciplinary Activities	(2013-2014)
Stat 355 Course Coordinator	(2011-2014)
Advising, Graduation Review	(2012-2013)

PROFESSION

Manuscript Reviewer for

- Journal of American Statistical Association
- Journal of Statistical Inference and Planning
- Human Heredity
- Nature Methods
- Journal of Computational Statistics
- Statistics and Probability Letters
- Communications in Statistics – Theory and Methods
- BMC Medical Research Methodology