CV

Fares Qeadan

Statistician/Biostatistician/Programmer

PERSONAL INFORMATION

Address: Department of Internal Medicine
Division of Epidemiology, Biostatistics, & Preventive Medicine
University of New Mexico
Albuquerque, New Mexico, 87131
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EDUCATION

PhD. in Statistics (with distinction)   December 2014
University of New Mexico (UNM)
Albuquerque, NM
Advisor: Professor Ronald Christensen

M.S. in Statistics   August 2011
Michigan State University (MSU)
East Lansing, MI
Advisor: Professor Mark Meerschaert

M.S. in Mathematics   August 2008
University of Nevada Reno (UNR)
Reno, NV
Advisor: Professor Anna Panorska

B.S. in Math & Computer Science (with high distinction)   May 2006
University of Nevada Reno (UNR)
Reno, NV
Advisor: Professors Anna Panorska & Frederick Harris

EXPERIENCE

Research Assistant Professor   March 2015- present
Department of Internal Medicine, University of New Mexico

Research Assistant Professor   January 2015- March 2015
Department of Pathology, University of New Mexico

Fares Qeadan, Ph.D.

Lecturer II   September 2014- Dec. 2014
Department of Pathology, University of New Mexico

- Worked on the impact of HPV vaccination on cervical screening outcomes.

Research Biostatistician   Summer 2014
VisionQuest Biomedical LLC
Albuquerque, New Mexico

- Worked on analysis of data from a clinical trial for NIH projects.
- Worked on statistical design and power analysis for FDA purposes.

Research Assistant (RA)   Jan 2014 – August 2014
Math & Statistics Department, University of New Mexico

- Studied the Equivalence of LRT, RLRT and F tests for testing variance components in mixed models.
- Studied objective priors for the variance components in the class of generalized split-plot models.
- Developed the concept of *quantile-stochastic* random variables; a new concept in distribution theory.

Project Assistant (PA)   Dec 2011 – May 2012, Jan 2013 – May 2013
Sandia National Labs (through UNM)

- Studied the influence of future population growth on the projected increase of radioactive materials in medicine.
- Studied the Forecast of the 2020 and 2030 Demand for Radioactive Materials Used in Medicine.

Teaching Assistant (TA)   2011-2013
Math & Statistics Department, University of New Mexico

- Instructor for Stat 145 (Introduction to Statistics).
- Instructor for Stat 345 (Mathematical Statistics and Probability).

Teaching Assistant (TA)   2009-2011
Statistics & Probability Department, Michigan State University

- Teaching Assistant for STT200 (Statistical Methods) for 3 semesters.
- Grader for STT802 (Statistical Computation) for one semester.
- Instructor for two courses (STT200-Statistical Methods).

Fares Qeadan, Ph.D.

Research Biostatistician (RA) 2007-2009
Nevada Center for Health Statistics and Informatics
University of Nevada Reno, School of Public Health

- Worked on health datasets management and quality control.
- Produced several health reports used by the university and other state health agencies.
- Implemented multiple logistic models and contributed to the design and analysis of peer reviewed articles.

Research Assistant (RA) 2004-May 2008
Math & Statistics Department, University of Nevada Reno

- Worked on a new statistical test using likelihood ratio test and the development of a new bivariate distribution for hydro climate data.

Statistical Analyst Research Assistant (RA) 2004-2005
Center for Research Design and Statistical Methods, University of Nevada Reno

- Worked on many challenging statistical consulting projects from all areas of science for graduate students, faculty and community.
- Maintained the webpage of the center using HTML.

Biostatistician II/SAS Programmer (contracting) 2004-2006
Center for Health Data and Research, State of Nevada Health Division

- Developed and disseminated various statistical public health reports on an annual basis, periodically or as a special study (BRFSS, Medicaid, Cancer, Birth Registry, HARS, Immunization…).
- Managed health databases using the SAS system.

RESEARCH INTERESRS

My current research is focused in developing new multivariate statistical methods for microbiome and immunology data such as cytokines. I am also developing new results in linear models for the generalized split plot designs, LRT, RLRT and F-Tests. My research interests cover the areas of linear models (mixed models), generalized linear models (logistic/Poisson regression), distribution theory (boundary cases), extreme value theory (peak over threshold), time-series with regressors, and Bayesian methods for hierarchical models. I am also interested in health informatics, sampling, Big Data, geographic information systems (GIS) and statistics for Health, Ecology and Climate.

SOCIETIES AND HONORS

Fares Qeadan, Ph.D.

1. American Statistical Association (ASA)
2. Association for Computing Machinery (ACM)
3. Golden Key International Honor Society
4. A recipient of the 2012-2013 Susan Deese Roberts Outstanding Teaching Assistant of the Year (University of New Mexico).
5. Doctoral Fellowship: Summer 2009 (Michigan State University, Department of Statistics & Probability).
6. Excellence in scholarship award (2007-2008) in Mathematics and Statistics (University of Nevada, Reno).
7. The Gold Medal recipient of the 2006 best senior project in the computer science department (University of Nevada, Reno).
8. The 2006 College of Science Dean's Scholar Award recipient (University of Nevada, Reno).
9. The International student scholar award recipient for two consecutive years 2003-2004 (University of Nevada, Reno).
10. Nevada Board of Regents' Scholar Award Nominee for the year 2004.
11. Invited to serve as a collegiate scholar at the 2006 International scholar laureate program delegation on technology.

PUBLICATIONS

Peer Reviewed Papers:

1. Hosey, G., S.A. Llorens-Chen, **F. Qeadan**, D. Crawford, C. Wilson, and W. Yang. Assessing Behavioral Health Risks, Health Conditions, and Preventive Health Practices among American Indians/Alaska Natives in Nevada. *Journal of Health Disparities Research and Practice* **1(3)**: 29-44, 2007.

2. Biondi, F., and **F. Qeadan**. Inequality in paleorecords. *Ecology* **89(4)**: 1056–1067, 2008.

3. Biondi, F., and **F. Qeadan**. A theory-driven approach to tree-ring standardization: Defining the biological trend from expected basal area increment. *Tree-Ring Research* **64(2)**: 81-96, 2008.

4. Kozubowski, T.J., A.K. Panorska, **F. Qeadan** and A. Gershunov, and D. Rominger. Testing exponentiality versus Pareto distribution via likelihood ratio. *Communications in Statistics: Simulation and Computation* **38(1)**: 118-139, 2009.

5. Von Berg S., A. Panorska, D. Uken, and **F. Qeadan**. DECtalk™ and VeriVox™: Intelligibility, Likeability, and Rate Preference Differences for Four Listener Groups. *Augmentative and Alternative Communication* **25(1)**: 7-18, 2009.

6. Yang, W., **F. Qeadan**, M.L. Brown, M. Chino, S. Hall, and M. Guinan. Race/Ethnicity as a Risk Factor of Mother to Child Transmission among HIV

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Infected Mothers. *Journal of Health Disparities Research and Practice* **3(1)**: 15-28, 2009.

7. Yang, W., **F. Qeadan**, and J. Smith-Gagen. The Hispanic Epidemiological Paradox in the Fastest Growing State in the US. *Hispanic Health Care International* **7(3)**: 130-141, 2009.

8. Yang, W., **F. Qeadan**, and J. Smith-Gagen. Examination of Health Behaviours in a Dynamic Population. *Journal of Epidemiology and Community Health* **65(12)**: 1140-4, 2011.

9. Yang, W., **F. Qeadan**, D.M. Cook, and J. Smith-Gagen. Heterogeneity of Odds Ratios over Time in Cross Sectional Trend Studies: An Overweight-Obesity Example from a Nationwide Population-based Study. *Advances and Applications in Statistics* **17(2)**: 175-190, 2010.

10. **F. Qeadan**, Kozubowski, T.J., and A.K. Panorska. The Joint Distribution of the sum and maximum of iid exponential random variables. *Communications in Statistics: Theory and Methods* **41(3)**: 544-569, 2012.

11. Kozubowski, T.J., A.K. Panorska, and **F. Qeadan**. A new multivariate model involving geometric sums and maxima of exponentials. *Journal of Statistical Planning and Inference* **141(7)**: 2353-2367, 2011.

12. Kozubowski, T.J., A.K. Panorska, and **F. Qeadan**. The distributions of the peak to average and peak to sum ratios under exponentiality. *Advances in Directional and Linear Statistics: A Festschrift for Sreenivasa Rao Jammalamadaka* (2011), Martin T. Wells and Ashis SenGupta (Eds.), Chapter 9 pp. 131-142. Springer.

13. Bunn, A.G., Korpela, M., Biondi, **F., Qeadan**, F., Zang, C., 2012. dplR: Dendrochronology Program Library in R. http://cran.r-project.org/web/packages/dplR/index.html

14. **Fares Qeadan** and Ronald Christensen. New stochastic inequalities involving the F and Gamma Distributions. *The Journal of Inequalities and Special Functions*. Volume 5 Issue 4(2014), Pages 22-33.

Work in progress

15. **Fares Qeadan** and Ronal Christensen. On the equivalence between the LRT, RLRT and F-test for testing variance components in the generalized split-plot models (to be submitted to *Biometrika*).

16. **Fares Qeadan**, Michael Sonksen and Ronald Christensen. Comparison of Variance Components Estimates in a Split-Plot Design: Bayesian, MLE and REML (to be submitted to *Bayesian Analysis*).

Fares Qeadan, Ph.D.

17. **Fares Qeadan**, Huan Jiang, Yan Lu and Wei Yang. Sex differentials in natality by maternal age in New Mexico-Unites States (to be submitted to *Hispanic Health Care International*).

Conference Papers and Talks:

1. **Qeadan, F.,** S. Malik, and J. Motta. goSmart Home Automation Software. 2006 Nevada Undergraduate Research Symposium, Reno, NV, April 2006. Abstract (pp. 33).

2. Yang, W., **F. Qeadan**, L. Lotts, and M. Chino. Health Conditions and Behaviors of Nevada Hispanic Population. 24th Annual Behavioral Risk Factor Surveillance System Conference "BRFSS: Promoting Healthier, Safer People". Atlanta, GA, CDC, March 25, 2007.

3. Motta, J., **F. Qeadan**, S.M. Dascalu, S. Malik, and F.C. Jr. Harris. goSmart: A New Solution for Home Automation. In Proceedings of the International Conference on Software Engineering and Data Engineering (SEDE-2007), Las Vegas, NV, July 2007, pp. 1-8.

4. Biondi, F. and **F. Qeadan**. Removing the tree-ring width biological trend using expected basal area increment. In: S.D. Olberding and M.M. Moore (technical coordinators) Fort Valley Experimental Forest - A Century of Research 1908-2008, Conference Proceedings, USDA Forest Service, Rocky Mountain Research Station, RMRS-P-55, Fort Collins, CO, pp. 124-131, 2008.

5. **F. Qeadan**, H. Jiang, L. Zhou and Y. Wei. Forecasting the 2020 and 2030 Demand for Radioactive Materials Used in Medicine. 2013 ASA Albuquerque Chapter Meeting. Santa Fe, NM, September 20, 2013.

Scientific Technical Reports:

1. Brown, M.L., D. Crockett, B. Lee, D. Margolis, K. McNeese-Houle, **F. Qaedan**, and W. Yang. Nevada State Health Division. A profile of children born to HIV infected mothers in Nevada: 1994-2003.

2. **Qeadan, F.,** Corradina, M., and Yang, W. 2006. Health Behaviors and Conditions of Nevada Adults - Behavioral Risk Factor Surveillance Survey (BRFSS) Report 1992-2004. Nevada State Health Division Publications. January, 2006. Carson City, Nevada. 129 pages.

3. Yang, W., **F. Qeadan**, Calder, J., Dahir, B.V. Hansen, A.C., Rivers, A. Langdon, K. and Ritch, L. 2007. Intimate Partner Violence Prevalence Report in Nevada 2005-2006. Joint Publication of University of Nevada Reno and Nevada State Department of Health and Human Services. June, 2007. Reno, Nevada. 47 pages. PUB-NCHSI-07-01.

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4. Yang, W., **F. Qeadan**, Calder, J., Dahir, B.V. Hansen, A.C., Rivers, A. Landon, K. and Ritch, L. 2007. Sexual Violence Prevalence Report in Nevada 2005-2006. Joint Publication of University of Nevada Reno and Nevada State Department of Health and Human Services. June, 2007. Reno, Nevada. 44 pages. PUB-NCHSI-07-03.

5. Yang, W., **F. Qeadan**, Calder, J., Dahir, B.V. Hansen, A.C., Jordan, J., Ritch, L., Wood, C. and Wright, J. 2007. Nevada Oral Health Prevalence Report 1996-2006. Joint Publication of University of Nevada Reno and Nevada State Department of Health and Human Services. July, 2007. Reno, Nevada. 69 pages. PUB-NCHSI-07-04.

6. Yang, W., **F. Qeadan**, Calder, J., Dahir, B.V. Burden, S., Canfield, M., Hansen, A.C., Kailash, V. and Ritch, L. 2007. Alcohol and Drug Use Prevalence Report in Nevada 1992-2006. Joint Publication of University of Nevada Reno and Nevada State Department of Health and Human Services. August, 2007. Reno, Nevada. 30 pages. PUB-NCHSI-07-05.

7. Yang, W., **F. Qeadan**, Calder, J., Dahir, B.V. Cress, I., S., Hansen, A.C., Herst, C., McBride, D. and Ritch, L. 2007. Arthritis Prevalence Report of Nevada 2001, 2003 and 2005. Joint Publication of University of Nevada Reno and Nevada State Department of Health and Human Services. August, 2007. Reno, Nevada. 60 pages. PUB-NCHSI-07-06.

8. Yang, W., **F. Qeadan**, Calder, J., Dahir, B.V. Moonie, S., Hansen, A.C., Herst, C., McBride, D. and Ritch, L. 2007. Childhood Asthma Prevalence Report in Nevada 2006. Joint Publication of University of Nevada Reno and Nevada State Department of Health and Human Services. August, 2007. Reno, Nevada. 17 pages. PUB-NCHSI-07-07.

9. Yang, W., **F. Qeadan**, Calder, J., Dahir, B.V. Banghart, D., Hansen, A.C., Herst, C., McBride, D. and Ritch, L. 2007. Nevada Childhood Immunization Prevalence Report 2006. Joint Publication of University of Nevada Reno and Nevada State Department of Health and Human Services. August, 2007. Reno, Nevada. 17 pages. PUB-NCHSI-07-08.

10. Yang, W., **F. Qeadan**, Calder, J., Dahir, B.V., Hansen, A.C., Salcido, W., McBride, D. and Ritch, L. 2007. Nevada HIV/AIDS Prevalence Report 1992-2006. Joint Publication of University of Nevada Reno and Nevada State Department of Health and Human Services. September, 2007. Reno, Nevada. 33 pages. PUB-NCHSI-07-09.

11. Yang, W., **F. Qeadan**, Calder, J., Dahir, B.V. Hansen, A.C., Herst, C., McBride, D., Ritch, L. and Williams, M.L. 2007. Women's Health Prevalence Report in Nevada 1992-2006. Joint Publication of University of Nevada Reno and Nevada

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State Department of Health and Human Services. September, 2007. Reno, Nevada. 34 pages. PUB-NCHSI-07-10.

12. Yang, W., **F. Qeadan**, Calder, J., Dahir, B.V., Handler, B., Hansen, A.C., Herst, C., Hosey, G., McBride, D., Ritch, L. and Williams, M.L. 2007. Diabetes Prevalence Report in Nevada 1992-2006. Joint Publication of University of Nevada Reno and Nevada State Department of Health and Human Services. September, 2007. Reno, Nevada. 33 pages. PUB-NCHSI-07-11

13. Yang, W., **F. Qeadan**, Calder, J., Dahir, B.V., Hansen, A.C., Crowe, K., and Ritch. 2007. Nevada Depression and Anxiety Prevalence Report 2006. Joint Publication of University of Nevada Reno and Nevada State Department of Health and Human Services. September, 2007. Reno, Nevada. 38 pages. PUB-NCHSI-07-12.

14. Yang, W., W. Lee, **F. Qeadan**, Calder, J., Dahir, B.V., Hansen, A.C., and Ritch, L. 2008. Nevada BRFSS (Core Module) Analysis and Report 2006. Joint Publication of University of Nevada Reno and Nevada State Department of Health and Human Services. January, 2008. Reno, Nevada. 114 pages. PUB-NCHSI-08-01.

15. Yang, W., W. Lee, **F. Qeadan**, Dahir, B.V., Handler, B., Hansen, A.C., and Ritch, L. 2008. Analysis on Diabetes Prevalence and Relationship between Diabetes and other Health Conditions. A Special Analysis based on Nevada Behavioral Risk Factor Surveillance System (BRFSS) 2001 – 2006. Joint Publication of University of Nevada, Reno and Nevada State Department of Health and Human Services. March, 2008. Reno, Nevada. 72 pages. PUB-NCHSI-08-02.

16. **F. Qeadan**, H. Jiang, L. Zhou and Y. Wei. The Need for Radiation Therapy. May 2013. Department of Mathematics and Statistics, University of New Mexico and Global Physical Security Program, Sandia National Labs.

TEACHING

Courses Taught:

1. Mathematical Statistics and Probability (University of New Mexico)
2. Introduction to Statistics (University of New Mexico)
3. Statistical Methods (Michigan State University)

Courses Able to Teach:

1. Survival Data Analysis
2. Longitudinal Data Analysis
3. Time Series Data Analysis
4. Categorical Data Analysis (Discrete Statistics)

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5. Multivariate Data Analysis
6. SAS Programming (Introduction, Intermediate and Advanced)
7. Computational Statistics and Algorithms
8. Meta Analysis
9. Sampling
10. Experimental Design
11. Regression Analysis
12. Probability and Measure Theory
13. Statistical Inference
14. Large Sample Theory
15. Linear Models Theory
16. Generalized Linear Models (GLM)
17. Mixed Models
18. Bayesian Statistics
19. Health Informatics and Databases Management
20. Software Applications (R, SAS, STATA, SPSS, Minitab and others)
21. GIS for Public Health
22. Tools and Solutions for Big Data

SERVICE

Referee/ Reviewer:

1. The American Statistician
2. The Journal of Epidemiology and Community Health.
3. Stochastic Environmental Research and Risk Assessment.

PROGRAMMING SKILLS

SAS	C/C++	Mathematica	Automatch	*UML ArcGIS*
Minitab	Qt	Matlab	LINDO	SQL
S-Plus /R	Scheme	Maple	LINGO	HTML
SPSS	Prolog	STATA	MS Office	MS Access

APPLICATION DEVELOPMENT (Qt/C++)

1. goSmart (Home automation software via interface with MS Access)
2. DendroGraph2008 (Statistical Software via Interface with R)

ALGORITHIMS

I have solved a non-deterministic polynomial-time (NP) problem. In particular, I have developed an original algorithm that determines the existence and uniqueness of solutions for the Gold Coins Game in a deterministic polynomial time.

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