

# Bernard Oguna Omolo

## Work Address

Division of Mathematics & Computer Science  
University of South Carolina–Upstate  
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## Home Address

508 Kennet Court  
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## EDUCATION & TRAINING

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|--|-----------------|
| <b>University of North Carolina - Chapel Hill</b> Chapel Hill, NC<br>Postdoctoral Research Associate (Cancer Genomics), Dept. of Biostatistics | 07/2009–08/2010 |
| <b>Texas Tech University</b> Lubbock, TX<br>Ph.D. in Mathematical Statistics, Dept. of Mathematics & Statistics                                | 08/1999–08/2004 |
| <b>Egerton University</b> Njoro, KE<br>M.S. in Statistics, Dept. of Mathematics.   | 02/1992–05/1994 |
| <b>Egerton University</b> Njoro, KE<br>B.S. in Mathematics, Dept. of Mathematics.  | 08/1987–09/1990 |

## ACADEMIC POSITIONS

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|---|-----------------|
| <b>University of South Carolina–Upstate</b> Spartanburg, SC<br>Professor, Div. of Math & Computer Science                               | 08/2016–Present |
| <b>University of South Carolina–Upstate</b> Spartanburg, SC<br>Associate Professor, Div. of Math & Computer Science                     | 08/2010–08/2016 |
| <b>University of South Carolina–Upstate</b> Spartanburg, SC<br>Assistant Professor, Div. of Math & Computer Science: On Education Leave | 07/2009–08/2010 |
| <b>University of South Carolina–Upstate</b> Spartanburg, SC<br>Assistant Professor, Div. of Math & Computer Science                     | 08/2004–06/2009 |
| <b>University of South Africa</b> Johannesburg, South Africa<br>Visiting Fellow, Department of Statistics                               | 07/2017–07/2017 |
| <b>Swiss Institute of Bioinformatics (SIB)</b> Lausanne, CH<br>Visiting Scientist   | 06/2016–08/2016 |
| <b>Statistical and Mathematical Sciences Institute (SAMSI)</b> RTP, NC<br>Visiting Research Fellow                                      | 09/2011–12/2011 |
| <b>Strathmore University</b> Nairobi, KE<br>Visiting Professor, Institute of Mathematical Sciences                                      | 06/2013–Present |
| <b>Texas Tech University</b> Lubbock, TX<br>Graduate Part-time Instructor, Dept. of Mathematics & Statistics                            | 08/1999–08/2004 |
| <b>Egerton University</b> Njoro, KE<br>Lecturer, Dept. of Mathematics: On Study Leave   | 08/1999–08/2004 |
| <b>Egerton University</b> Njoro, KE<br>Lecturer, Dept. of Mathematics   | 02/1999–08/1999 |
| <b>Egerton University</b> Njoro, KE<br>Assistant Lecturer, Dept. of Mathematics   | 05/1994–01/1999 |
| <b>Egerton University</b> Njoro, KE   | 10/1990–05/1994 |

Teaching Assistant, Dept. of Mathematics

#### ADMINISTRATIVE POSITIONS

**University of South Carolina–Upstate** Spartanburg, SC 05/2017 – Present  
Chair, Div. of Math & Computer Science

**University of South Carolina–Upstate** Spartanburg, SC 08/2015 – 05/2017  
Interim Chair, Div. of Math & Computer Science

**University of South Carolina–Upstate** Spartanburg, SC 08/2013 – 08/2015  
Assistant Chair, Div. of Math & Computer Science

#### HONORS & AWARDS

**Nominee for the 2014-15 USC Upstate Excellence in Teaching & Advising Award** Univ of South Carolina – Upstate

**Nominee for the 2013-14 Bank of America Excellence in Teaching & Advising Award** Univ of South Carolina – Upstate

**USC Featured Scholars of the Month** Univ of South Carolina 08/2013

**ICTP Visiting Scholarship** Strathmore University 03/2013 – 06/2019

**NIH Travel Award** Diversity in Biostatistics Workshop (ENAR) 03/2010, 03/2012, 03/2016

**NSF Research Fellowship** SAMSI 09/2011–12/2011

**NCI Training Fellowship** Univ of North Carolina–Chapel Hill 07/2009–08/2010

**NHLBI SIPID Scholarship** Washington Univ–St. Louis 2008/09

**NSF Travel Award** Quality Education for Minorities, Washington, DC 05/2008

**NIH/NCI Travel Award** Workshop for Junior Researchers in Biostatistics (ENAR) 03/2004

**Gordon Fuller Memorial Graduate Scholarship** Texas Tech University 1999–2000, 2003–2004

**NSF Travel Award** 7th Purdue International Symposium on Statistics 06/2003

**German Academic Exchange (DAAD) Graduate Scholarship** Egerton University 1993–1994

**First Class Honors B.S. (Mathematics)** Egerton University 09/1990

#### RESEARCH INTERESTS

Statistical Genomics and Genetics; Bioinformatics; Clinical Trials; Cancer; Environmetrics

#### JOURNAL ARTICLES (\*student co-author)

**Odhiambo, C., Davis, J., Omolo, B. (2017).** Risk for Cardiovascular Disease in Blacks with HIV/AIDS in America: A Systematic Review and Meta-analysis. *Journal of Health Disparities Research and Practice*, **10**(2), 121–141.

- \*Chaba, L., Odhiambo, J., Omolo, B. (2017). Evaluation of Methods for Gene Selection in Melanoma Studies. *Int. J. Stats. Med. Res.*, **6**(1), 1–9.
- \*Odhiambo, C., Odhiambo, J., Omolo, B. (2017). Validation of the Smooth Test of Goodness-of-fit for Proportional Hazards in Cancer Survival Studies. *Int. J. Stats. Med. Res.*, **6**(2), 49–67.
- \*Odhiambo, C., Odhiambo, J., Omolo, B. (2017). A Smooth Test of Goodness-of-fit for the Weibull Distribution: An Application to an HIV Retention Data. *Int. J. Stats. Med. Res.*, **6**(2), 68–78.
- \*Odhiambo, C., Odhiambo, J., Omolo, B. (2017). A Smooth Test of Goodness-of-fit for the Baseline Hazard Function for Time-to-First Occurrence in Recurrent Events: An Application to an HIV Retention Data. *Int. J. Stats. Med. Res.*, **6**(3), 104–113.
- \*Chaba, L., Odhiambo, J., Omolo, B. (2017). Using Copulas to Select prognostic Genes in Melanoma Patients. *Int. J. Stats. Med. Res.*, **6**(3), 114–122.
- \*Chaba, L., Odhiambo, J., Omolo, B. (2017). A Comparison of Parametric and Semi-Parametric Models for Microarray Data Analysis. (accepted)
- Omolo, B., Yang, M., Lo, F.Y., Schell, M. J., Austin, S., Howard, K., Madan, A., Yeatman, T.J. (2016) Adaptation of a RAS Pathway Activation Signature from FF to FFPE Tissues in Colorectal Cancer. *BMC Medical Genomics*, **9**(1):65. [PMID: **27756306**].
- Oluyede, B. O., Yang, T., Omolo, B. (2015). A Generalized Class of Kumaraswamy Lindley Distribution with Application to Lifetime Data. *Journal of Computations & Modelling*, **5**(1), 27–70.
- Kaufmann, W. K., Carson, C., Omolo, B., Sambade, M., Simpson, D., Filgo, A., Fields, J., Ibrahim, J., Thomas, N. (2014). Mechanisms of chromosomal instability in melanoma. *Environ Mol Mutagen*, **55**(6), 457–471. [PMID: **24616037**].
- Nikolaishvilli-Feinberg, N., Cohen, S. M., Midkiff, B., Zhou, Y., Olorvida, M., Ibrahim, J. G., Omolo, B., Shields, J. M., Thomas, N. E., Groben, P. A., Kaufmann, W. K., Miller, C. R. (2014). Development of DNA Damage Response Signaling Biomarkers Using Automated Quantitative Image Analysis. *J Histochem Cytochem*, **62**, 185–196. [PMID: **24309508**].
- Omolo, B., Carson, C., Chu, H., Zhou, Y., Simpson, D. A., Hesse, J. E., Paules, R. S., Nyhan, K. C., Ibrahim, J. G., Kaufmann, W. K. (2013). A prognostic signature of G2 checkpoint function in melanoma cell-lines. *Cell Cycle*, **12**, 1071–1082. [PMID: **23454897**].
- Omolo, B., Zhang, H., Karmaus, W. (2013). Cautions of Using Allele-based Tests under Heterosis. *Int. J. Stats. Med. Res.*, **2**, 47–54.
- Hamilton, R., Krauze, M., Romkes, M., Omolo, B., Konstantinopoulos, P., Reinhart, T., Harasymczuk, M., Wang, Y., Lin, Y., Ferrone, S., Whiteside, T., Bortoluzzi, S., Werley, J., Nukui, T., Fallert-Junecko, B., Kondziolka, D., Ibrahim, J., Becker, D., Kirkwood, J., Moschos, S. (2013). Pathologic and Gene Expression Features of Metastatic Melanomas to the Brain (MBM). *Cancer*, **119**, 2737–2746. [PMID: **23695963**].
- Carson, C., Omolo, B., Chu, H., Zhou, Y., Sambade, M. J., Peters, E. C., Tompkins, P., Simpson, D. A., Thomas, N. E., Fan, C., Sarasin, A., Dessen, P., Shields, J.M., Ibrahim, J. G.,

**Kaufmann, W. K. (2012).**

A prognostic signature of defective p53-dependent G1 checkpoint function in melanoma cell-lines. *Pigment Cell Melanoma Res*, **25**, 514–526. [PMID: **22540896**].

**Cooley, D., Cisewski, J., Erhardt, R. J., Jeon, S., Mannshardt, E., Omolo, B. O. & Sun, Y. (2012).**

A survey of spatial extremes: Measuring spatial dependence and modeling spatial effects. *Revstat*, **10**, 135–165

**S.-H. Lee, E. Lee, B. O. Omolo (2008).**

Using Integrated Weighted Survival Difference for the Two Sample Censored Data Problem. *Computational Statistics & Data Analysis*, **52**, 4410–4416

**Einmahl, J. H. J., Omolo, B. O., Puri, M. L., Ruymgaart, F. H. (2005).**

Aligned Rank Statistics for Repeated Measurement Models with Orthonormal Design Employing a Chernoff-Savage Approach. *Journal of Statistical Planning and Inference*, **130**, 167–182

**\*Okuto, E., Marshall, M., Odondi, L., Ongati, O., Muhammad, A., Opiyo, E., Omolo, B. (2017).**

A Novel Bayesian Approach to Smooth and Gap-Fill Earth Observation-based Vegetation Index Records. (submitted)

## RESEARCH SUPPORT

**The Burroughs Wellcome Fund** 1015192 06/2015 – 08/2016

Role: Principal Investigator; Total Funding: \$10,000.

**National Cancer Institute** 3U01-CA-157960-03S1 09/2014 – 08/2016

Role: Co-Investigator; Total Funding: \$269,336.

**Simons Foundation** 282714 09/2013 – 08/2018

Role: Principal Investigator; Total Funding: \$35,000.

**SC Research Foundation - RISE Program** 17880-14-35535 05/2014 – 12/2014

Role: Principal Investigator; Total Funding: \$5,000.

**SC Research Foundation - RISE Program** 17880-13-32933 05/2013 – 08/2014

Role: Principal Investigator; Total Funding: \$5,000.

**SC Research Foundation - ASPIRE Program** 17880-12-29602 05/2012 – 08/2013

Role: Principal Investigator; Total Funding: \$11,228.

**USC Upstate Teaching & Productive Scholarship Grants** 10/2007 – 05/2017

Role: Principal Investigator; Total Funding: \$15,198.

**USC Upstate Faculty Course Reallocation Grants** 01/2009 – 12/2014

Role: Principal Investigator; Total Funding: \$10,000.

## INVITED TALKS

**A Comparison of Parametric and Semi-parametric Models for Microarray Data Analysis** ISI-World Statistics Congress 2017 Conference, Marrakech, Morocco; July, 2017.

**Adaptation of a RAS Pathway Activation Signature from FF to FFPE Tissues in Colorectal Cancer** World Cancer Congress 2017 Conference, Barcelona, Spain; May, 2017.

**Using Copulas to Select Prognostic Genes in Melanoma Patients.** ICMSIT 2016 Conference, Tanta University, Egypt; December, 2016.

**A Quantitative Trait Analysis of the G2 Checkpoint Function in Melanoma Cell-lines.** Department of Probability & Statistics Seminar, CIMAT, Guanajuato, Mexico; June, 2015.

**A Prognostic Signature for G2 Checkpoint Function in Melanoma Cell Lines.** 2nd Strathmore International Mathematics Conference, Strathmore University; August, 2013.

**A Bayesian Hierarchical Model for Correlation in Microarray Studies.** International Mathematics Research Meeting, Strathmore University; July, 2012.

**Statistical Analysis of DNA Microarray Data.** The First Strathmore University Mathematics Conference, Strathmore University; August, 2011.

**A Signature of p53-dependent G1 Checkpoint Function in Melanoma Cell-lines.** Department of Mathematical Sciences Colloquium, Georgia Southern University; March, 2011.

**Quantitative Analysis of G2 Checkpoint Function in Melanoma Cell-lines.** LCCC Biostatistics Core Seminar, University of North Carolina–Chapel Hill; January, 2011.

**Cautions of Using Allelic Tests under Overdominance.** Morehouse School of Medicine, Atlanta, GA; November, 2009.

**Statistical Methods for Observational Studies.** International Research and Philosophy Symposium, Sherman College; October, 2005.

#### CONTRIBUTED TALKS (\*student presentation)

**\*Comparison of the SAM and a Bayesian Method for Differential Gene Expression Analysis.** XXVIII *IBC* Conference, Victoria, Canada; July, 2016. *Best Paper Award, Young Statisticians Showcase*

**\*A Copula-based Approach to Differential Gene Expression Analysis.** XXVII *IBC* Conference, Florence, Italy; July, 2014.

**A Prognostic Signature of Defective p53-dependent G1 Checkpoint Function in Melanoma Cell-lines.** 2012 Joint Statistical Meetings, San Diego, CA; August, 2012.

**A Bayesian Hierarchical Model for Correlated Microarray Datasets.** 2011 Joint Statistical Meetings, Miami, FL; August, 2011.

**Bayesian Hierarchical Models for Cross-Study Reproducibility of Gene Expression Data.** 2010 ENAR Conference, New Orleans, LA; March, 2010.

**Cautions of Using Allele-based Tests under Heterosis.** 2009 WNAR / IMS Conference, Portland State University; June, 2009.

**An Aligned Rank Test for a Repeated Measurement Model with Orthonormal Design.** 2nd Lehmann Symposium on Optimality, Rice University; May, 2004.

**Aligned Rank Statistics for Repeated Measurement Models with Orthonormal Design Employing a Chernoff-Savage Approach.** 7th Purdue International Symposium on Statistics, Purdue University; June, 2003.

#### POSTER PRESENTATIONS (\*student presentation)

**Using Copulas to Select Prognostic Genes in Melanoma Patients.** *ICOSDA 2016* Conference, Niagara Falls, Canada; October, 2016.

- \*A Smooth Test of Goodness-of-fit for the Weibull Distribution: An Application to an HIV rentention Data.** *ICOSDA 2016* Conference, Niagara Falls, Canada; October, 2016.
- \*A Smooth Test of Goodness-of-fit for the Weibull Distribution: An Application to an HIV rentention Data.** *XXVIII IBC* Conference, Victoria, Canada; July, 2016.
- Validation of a 32-gene classifier for the subtyping of carcinomas using the qNPA ArrayPlate Platform.** 2015 AACR Annual Meeting, Philadelphia, PA; April, 2015.
- \*A Smooth Test of Goodness-of-fit for the Baseline Hazard Function in Recurrent Event Models.** *XXVII IBC* Conference, Florence, Italy; July, 2014.
- Mechanisms of Chromosomal Instability in Melanoma.** *XXVII IBC* Conference, Florence, Italy; July, 2014.
- A Prognostic Signature for G2 Checkpoint Function in Melanoma Cell Lines.** 2013 SRCOS Summer Research Conference, Burns, TN; June, 2013.
- Bayesian Modeling of Cross-study Reproducibility of Gene Expression Data.** 2010 SRCOS Summer Research Conference, Norfolk, VA; June, 2010.
- An Asymptotically Distribution-free Aligned Rank Test for Location in a Repeated Observation Model.** 2007 Nonparametric Statistics Conference, University of South Carolina–Columbia; October, 2007.
- An Asymptotically Distribution-free Aligned Rank Test for Linearity of a Median Regression Function.** Risk Analysis, Extreme Events and Decision Theory Workshop, SAMSI; September, 2007.
- Aligned Rank Statistics for Repeated Measurement Models with Orthonormal Design Employing a Chernoff-Savage Approach.** Justus Seely Conference on Linear Models, Oregon State University; July, 2003.

#### MENTORING & SUPERVISION

<b>Collins Odhiambo</b> Lecturer, Strathmore University	(Ph.D., 06/2017)
<b>Linda Chaba</b> Lecturer, Strathmore University	(Ph.D., 06/2017)
<b>Erick Okuto</b> Assistant Lecturer, JOOUST	(Ph.D., 05/2016)
<b>Morine Akoth</b> Assistant Lecturer, Strathmore University	(in progress)
<b>Patrick Shabaya</b> Assistant Lecturer, Strathmore University	(in progress)
<b>Mohanad Mohammed</b> University of KwaZulu-Natal	(in progress)

#### TEACHING RECORD (Course / Textbook Authors)

**STA 8202: Probability and Stochastic Models** Ross

**STAT 512: Mathematical Statistics** Hogg & Tanis; Hogg, Tanis & Zimmerman

**STAT 413: Introduction to Stochastic Processes** Durrett; Ross

**STAT 410: Introduction to Probability Theory** Weiss; Hogg & Tanis; Ross

**STAT 516: Statistical Methods II** Ott & Longnecker

**MATH 315: Statistical Methods I** Ott & Longnecker

**ECON 292: Statistical Inference for Business and Economics** Lind *et al.*

**SOC 201: Social Statistics** Babbie, Halley & Zaino

**MATH 102: Elementary Statistics I** Brase & Brase; Moore; Larson & Farber

### **PROFESSIONAL SERVICE**

**Editorial Advisory Board Member** International Journal of Statistics in Medical Research

**Reviewer for:** Statistics in Medicine; Mathematical Reviews (AMS); PLoS ONE; Journal of Statistical Distributions and Applications; South African Journal of Statistics; The American Statistician; Journal of Biological Methods; Afrika Statistika; Journal of Advanced Statistics; Electronic Journal of Applied Statistical Analysis

**External Reviewer for Promotion and Tenure** Kansas State University

**External Examiner for Dissertation** University of KwaZulu-Natal

**External Examiner for Thesis** Botswana International University of Science and Technology

**Grant Review Panel Member, RISE Research Grants** Univ of South Carolina

**Grant Review Panel Member, ASPIRE-I Research Grants** Univ of South Carolina

**Contributed Session Chair, ENAR 2010:** *Pathway and Network-based Genomic Analysis*

**Abstract Reviewer and Judge, ABRCMS Conference**

**External Member, Scientific Committee, SIMC** Strathmore University

**Member, External Scientific Committee, SACSSS** University of the Witwatersrand

**2013 Research and Worksite Mentor, STEM Internship Program** Dorman High School

**2005 Faculty Mentor, SPRI** SC Governor's School of Science & Mathematics

### **PROFESSIONAL MEMBERSHIP**

**American Statistical Association (ASA)** 2002–Present

**International Biometric Society (ENAR)** 2002–Present

<b>Institute of Mathematical Statistics (IMS)</b>	2003–Present
<b>American Association for Cancer Research (AACR)</b>	2012–Present
<b>International Society for Bayesian Analysis (ISBA)</b>	2011–Present
<b>American Society of Clinical Oncology (ASCO)</b>	2014–2016