BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors. Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Gideon KD Zamba

eRA COMMONS USER NAME (credential, e.g., agency login): ZAMBAG

POSITION TITLE: Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Université du Bénin, Lomé-Togo, West Africa	MS-BS	08/1995	Applied Mathematics
School of Statistics, University of Minnesota	MS	09/2003	Statistics
School of Statistics, University of Minnesota	PhD	09/2003	Statistics

Dr. Gideon KD Zamba publishes under the name KD Zamba.

A. Personal Statement

I am a Full Professor of Biostatistics in the College of Public Health (CPH) at the University of Iowa. I have extensive experience in methodological and collaborative research. I have made contributions to the fields of sequential analysis, multivariate control theory, recurrent events, disease monitoring and syndromic surveillance. I also made substantive collaborative contributions in the mathematical modeling of glaucoma, emphysema, influenza, and cancer. I was a co-founder and director of the Biostatistics Summer Initiative and the Iowa Summer Institute in Biostatistics. I am currently the PI and the director for the Iowa Summer Institute for Research Education in Biostatistics (ISIREB)—which has been a very successful program funded by the NHLBI. I have always prioritized teaching, mentoring, research, and service. In 2002, I received the Excellence in Teaching Award at the School of Statistics, University of Minnesota. In 2011, I received the CPH Faculty Teaching Award at the University of Iowa, and in 2018 I received the CPH Faculty Service Award. In 2014 I was recognized as a Carver College of Medicine Teaching Scholar. I have successfully mentored 13 master's students' preceptorship projects and 4 PhD dissertations which have led to successful publications. In addition, I have mentored 14 different SIB students on summer research projects. I have also served on many PhD dissertation committees and am currently an Associate Editor for *Sequential Analysis*. Relevant publications resulting from PhD advising are:

- VanBuren, J. M., Oleson, J. J., **Zamba KD.** (2016). "Integrating Independent Spatio-Temporal Replication to Assess Population Trends in Disease Spread," *Statistics in Medicine* 35 (28); 5210—5221.
- Yang M., Cavanaugh JE., **Zamba KD.** (2015). "State-Space Models for Count Time Series with Excess Zeros," *Statistical Modelling* 15 (1); 70—90.
- Yang M., **Zamba KD.**, Cavanaugh JE (2013). "Markov Regression Models for Count Time Series with Excess Zeros," *Statistical Methodology* 14; 26—38.

- Yang M., **Zamba KD.**, Cavanaugh JE (2013). “Statistical Model for Count Time Series with Excess Zeros,” *The R Project for Statistical Computing, Comprehensive R Archive Network (CRAN)*.
- Kummet C., **Zamba KD.**, Johnson C. Wall M. (2013). “Refinement of Pointwise Linear Regression Criteria for Determining Glaucoma Progression,” *Investigative Ophthalmology and Visual Science* 54(2) 1345-51.

Ongoing projects to highlight:

P30 CA086862 7/14/00-3/31/26
National Cancer Institute
Cancer Center Support Grant
PI: Weiner, George; Role: Biostatistician

R01 CA243014 6/03/19-5/31/24
National Institutes of Health
Alpha-Particle Emitter Peptide Receptor Targeted Radionuclide Therapy for Neuroendocrine Tumors PI: Menda, Yusuf/Schultz, Michael; Role: Biostatistician

RD-2-2-C2-2-329 7/21/21-7/31/25
PCORI
Comparative Effectiveness Research for Neuroendocrine Tumors (CER-NET) PI: O’Rorke, Michael; Role: Co-Investigator

H79 SM085092 9/30/21-9/29/24
National American Indian and Alaska Native Trauma TSA Center
Mental Health Technology Transfer Center – Tribal Affairs Center PI: Skinstad, Anne H.; Role: Co-Investigator

R25 HL161716 3/1/22-2/28/27
National Institutes of Health
Iowa Summer Institute for Research Education in Biostatistics and Data Science (ISIB) PI: Zamba, Gideon; Role: PI

I am currently the principal investigator for the NIH/NHLBI research education program, R25 HL131467, Summer Institute for Research Education in Biostatistics (ISIREB). I am also lead biostatistician and Coinvestigator on a number of funded research at the University of Iowa including being a member of the Biostatistics Core of the Holden Comprehensive Cancer Center, a faculty consultant at the Biostatistical Consulting Center, and the biostatistician for the first-in-the-nation funded Specialized Program Of Research Excellence (SPORE) in neuroendocrine tumor study. I believe my past experience well positions me to be a biostatistician and leader on the current R25 application.

B. Positions, Scientific Appointments, and Honors

<u>Positions and Academic Appointments</u>

2018- Professor, Department of Biostatistics, The University of Iowa College of Public Health
2012-2018 Associate Professor, Department of Biostatistics, The University of Iowa College of Public Health
2008- Director, Iowa Summer Institute in Biostatistics, The University of Iowa College of Public Health

2006-2012 Assistant Professor (Tenure-track), Department of Biostatistics, The University of Iowa College of Public Health

2005- Assistant Professor (Joint Appointment), Biostatistics Core, Holden Comprehensive Cancer Center, The University of Iowa College of Public Health

2004-2006 Assistant Professor (Clinical), Department of Biostatistics, The University of Iowa College of Public Health

2003-2004 Visiting Assistant Professor, Department of Biostatistics, The University of Iowa College of Public Health

Honors and Awards

2020 Nominated for the Teaching Excellence Award, Association of Schools and Programs of Public Health (ASPPH)

2019 Nominated for University of Iowa Diversity Catalyst Award

2019 Travel Award for the 6th AIC Meeting in Arsi, The American Statistical Association

2018 Faculty Service Award, University of Iowa College of Public Health

2016 Delta Omega Honor Society

2014 The University of Iowa Carver College of Medicine Teaching Scholar

2012-14 Teaching Scholar Program, University of Iowa Carver College of Medicine

2011 Faculty Teaching Award, University of Iowa College of Public Health

2002 Excellence in Teaching Award; University of Minnesota, School of Statistics

2001 Winner of the Society of Industrial and Applied Mathematics travel award to attend the First International Conference in Data Mining in Chicago, IL

2000 Winner of a NSF Travel Award to attend the First Midwest Conference in Experimental Design in Columbus, OH

1997 Distinguished Instructor Award; Kouvahey College, Lomé-Togo, West Africa

C. Contributions to Science

My research contributions to science have been in methodological statistics and also in application of statistical methodology to address general classes of biomedical problems. My specific areas of methodological contribution are: change point problems; sequential analysis; recurrent events; and syndromic surveillance. Areas of collaborative contributions are: glaucoma; emphysema; influenza and cancer. A selected listing of my published work can be found at http://www.myweb.uiowa.edu/gzamba/index_files/GZ_CanonicalCV.pdf .

1- Sequential Analysis and Change Points: My early work explored sequential multivariate change point detection in dynamic control theory. This work was undertaken using a generalized likelihood ratio test applied between various hypothetical pre-change and post change series for data that accrue serially. The technicality consists of applying the classical fixed-sample change point formulation to sequential processing by defining a repeated testing scheme in which as a new observation accrues, the change point test is reapplied to the accumulated data in a way that the probability of type I error remains constant. The multivariate adaptation of this method has been instrumental in change point detection in medical ambulatory monitoring. The approach has since then been widely used in industrial statistics.

- **Zamba KD.**, Hawkins DM. (2009). “A Multivariate Change Point Model for Change in Mean Vector and/or Covariance Structure,” *Journal of Quality Technology* 41(3), 539—549.
- **Zamba KD.**, Hawkins DM. (2006). “A Multivariate Change Point Model for Statistical Process Control,” *Technometrics* 48(4), 539—549.

- Hawkins DM., **Zamba KD.** (2005). “Statistical Process control for Shift in mean or Variance using a Change Point Formulation,” *Technometrics* 47(2) 164—173.

2- Syndromic Surveillance and Disease Monitoring: A second line of research and contribution to science examined some key issues pertaining to bio-surveillance; as bioterrorism became a focus in the US. As most biological weapons, when released, operate with symptoms similar to some infectious diseases, the focus has been centered on using medical data to assess evidence for biological activity. My work in this area defines a shift in medical information processing from the classical retrospective chart review to a prospective and realtime disease surveillance in which clinical data become investigational tools to report early biological activity to sentinels and augment medical diagnoses. My work in this area uses Bayesian thinking to prospectively model and detect unusual activity through sequential Bayes model-switching techniques, in order to monitor disease profiles such as seen in influenza-like illnesses.

- **Zamba KD.**, Tsiamyrtzis P., Hawkins DM. (2013). “A Three-State Recursive Sequential Bayesian Algorithm for Biosurveillance,” *Computational Statistics and Data Analysis* 58, 82—97.
- **Zamba KD.**, Tsiamyrtzis P., Hawkins DM. (2008). “Sequential Bayesian Control Model for Influenzalike-illnesses and Early Detection of Intentional Outbreak,” A Multivariate Change Point Model for Statistical Process Control,” *Health Edition of Quality Engineering* 20(4), 495—507.

3- Recurrent Events Distribution Estimation and Testing: My most recent methodological work has been in the area of the longitudinal assessment of episodes of recurrent events, including the estimation of their interevent time distribution and their hazard functions, in the presence of within-subject events correlation, and the testing mechanism of their distribution function against a parametric family for prediction and inferential purposes. This work is having a great impact as it provides a ground-breaking development that has led to new statistical testing mechanisms in the area of recurrent events analyses.

- Adekpedjou A., Withanage D-MA., **Zamba KD.** (2015.) “Data Dependent Cells Chi-Squared Test With recurrent Events,” *Scandinavian Journal of Statistics* doi: 10.1111/SJOS.12150.
- Adekpedjou A., **Zamba KD.** (2012). “A Chi-Squared Goodness-of-fit Test for Recurrent Event Data,” *Journal of Statistical Theory and Application* 11(2), 97-119.
- **Zamba KD.**, Adekpedjou A. (2010.) “Parameter Estimation for Correlated Recurrent Events under Informative Monitoring,” *Statistical Methodology* 8, 273—290.

4- Contribution to Science through Cancer, Influenza, Emphysema, and Glaucoma Research: My collaborative contributions to science are inextricably linked to my career and research endeavors as a biostatistician. As I hold joint appointments at the Holden Comprehensive Cancer center, I collaborate with investigators on a wide range of biomedical studies, including study designs, preclinical studies and clinical trials to evaluate new cancer treatments, and epidemiologic cancer studies. I also collaborate with investigators in neurology and ophthalmology to develop mathematical models for the spatio-temporal progression of glaucoma. In radiology and human lung assessment, I contribute to the statistical models of emphysema metrics, of lung parenchyma measures and their behaviors within the human lung tree.

- Menda, Y., Boles Ponto, LL., Scultz, M.K., **Zamba KD.**, Watkins G.L., Bushnell, D.L., Madsen M.T., Sunderland J.J., Graham M.M., O'Dorisio T.M., O'Dorisio,S.M. (2013). “Repeatability of 68GaDOTATOC PET Imaging in Neuroendocrine Tumors,” *Pancreas* 42(6) 937—43.
- Hrabe, J. E., Byrn, J. C., Kapadia, M. R., Button, A., **Zamba, KD.**, Mezhir, J. J. (2013). “A Matched Case-Control Study of IBD-Associated Colorectal Cancer: IBD Portends Worse Outcome,” *Journal of Surgical Oncology* doi 10.1002/jso.23465.
- Krishna, I. S., Grout R. W., Wilson, J. M., Cook-Granroth, J. E., **Zamba, KD.**, Hoffman, E. A. (2012). “Repeatability and Sample Size Assessment Associated with Computed Tamography-Based Lung Density Metrics”, *Academic Radiology* 1(1) 97—104.

- Wall M, Woodward KR, Doyle CK, **Zamba, KD.**, (2010) “The Effective Dynamic Ranges of Standard Automated Perimetry Sizes III and V, Motion and Matrix Perimetry”, *Archives of Ophthalmology* 128:570-576.

Complete List of Published Work in My Bibliography:
https://pubmed.ncbi.nlm.nih.gov/?term=Gideon+Zamba&size=20