

Samuel Anyaso-Samuel, Ph.D.

CONTACT INFORMATION

Biostatistics Branch
Division of Cancer Epidemiology & Genetics
National Cancer Institute
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Rockville, MD 20850

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RESEARCH INTERESTS

Statistical Genetics, Integrative Analysis of Sequencing and Multi-Omics Data, Biological networks, Cancer Epidemiology, Cluster-correlated data analysis, Informative Cluster Size, Univariate and Multivariate time-to-event data.

EDUCATION

University of Florida, Gainesville, FL, USA
Doctor of Philosophy (Ph.D.), **Biostatistics**

Aug, 2023

- Thesis Topic: *Advances in cluster-correlated data analysis when cluster size is informative*
- Advisor: [Somnath Datta, Ph.D.](#)

Boise State University, Boise, ID, USA
Master of Science (M.S.), **Mathematics**

May 2019

- Thesis Topic: *Dynamic Sampling Versions of Popular SPC charts for Big Data Analysis*
- Advisor: [Partha Mukherjee, Ph.D.](#)
- Area of Study: Statistics

Federal University of Technology, Owerri, Nigeria
Bachelor of Technology (BTech.), Statistics

Dec. 2014

- Thesis Topic: *Some contributions to the interpretation of Fuzzy Regression Intervals*
- Advisor: Benson Onoghojobi, Ph.D.

PROFESSIONAL EXPERIENCE

Postdoctoral Research Fellow
Biostatistics Branch
Division of Cancer Epidemiology & Genetics
National Cancer Institute, Bethesda, MD, USA

Sept. 2023 - Present

Biostatistician
Brain Rehabilitation Research Center
[NF/SG VHS Malcom Randall VA Medical Center](#), Gainesville, FL, USA

Aug. 2020 - Aug. 2023

Graduate Research and Teaching Assistant
Department of Biostatistics
[University of Florida](#), Gainesville, FL, USA

Aug. 2019 - Aug. 2023

Graduate Teaching Assistant
Department of Mathematics
[Boise State University](#), Boise, ID, USA

Aug. 2017 - May 2019

HONORS AND AWARDS

- Selected for Multi Omics NETwork Analysis (MONET) Workshop at University of Colorado Anschutz Medical Campus (June 2025)
- Blackwell-Tapia Conference – Travel Award (Nov. 2024)
- Southern Regional Council on Statistics Summer Research Conference – Travel Award (May 2024).

- 2023 Lifetime Data Science Conference – Student Poster Award (June 2023).
- 2023 Symposium on Data Science & Statistics - Student & Early Career Travel Award (May 2023).
- Poster Award (Data Science); 2022 College of Medicine Research Day (Apr. 2022).
- UF Department of Biostatistics PhD Travel Award (Mar. 2022).
- 2020 Intelligent Systems for Molecular Biology - Fellowship Award (July 2020).
- 36th ASA Quality & Productivity Research Conference - Student Scholarship (June 2019).
- 2019 ASA/IMS Spring Research Conference - Student Scholarship (May 2019).
- Best Poster; Workshop on Emerging Data Science Methods for Complex Biomedical and Cyber Data, *Department of Population Health Sciences, Medical College of Georgia* (Mar. 2019).
- Best Poster from College of Engineering; Boise State University service-learning student exhibition, *Boise State University* (Dec. 2018).
- Student Representative, American Statistical Association, *Boise State University* (June 2018).
- Graduate Summer Fellowship, Department of Mathematics, *Boise State University* (May 2018).
- Alfred M. Dufty Jr. Award, *Boise State University* (May 2018).
- Computing Research Association (CRA) Sponsorship for CRA URMD workshop (Mar. 2018).
- Graduate Residential Scholars Program, *Boise State University* (Aug. 2017).

PUBLICATIONS

10. McElderry, J., Zhang, T., Zhao, W., Hoang, P., **Anyaso-Samuel, S.**, ..., Landi, M. Comprehensive microbiome analysis of 940 lung cancers in never-smokers. *Accepted at Nature Communications*.
9. Wei, Z., Zhang, T., ..., **Anyaso-Samuel, S.**, ..., Shi, J., Landi, M. A prognostic signature for lung adenocarcinoma in people who have never smoked. *Accepted at Cancer Discovery*.
8. **Anyaso-Samuel S.**, Datta S., Roos E., Nevalainen J. Can the unit size predict outcomes? Testing for informativeness in three-level designs. *Statistics in Medicine*, 44(6), p.e70041, (2025).
7. **Anyaso-Samuel S.**, and Datta S. Testing for marginal covariate effect when the subgroup size induced by the covariate is informative. *Statistical Methods in Medical Research*, 33(7):1264-1277, (2024).
6. Sarkar S., **Anyaso-Samuel S.**, Qiu P., and Datta S. Multiblock Partial Least Squares and Rank Aggregation: Applications to Detection of Bacteriophages Associated with Antimicrobial Resistance in the Presence of Potential Confounding Factors. *Statistics in Medicine*, 43(13):2527-2546 (2024).
5. Leinen M., Grandy E., ..., **Anyaso-Samuel S.**, Datta S., and Schiefer M. Bilateral Subdiaphragmatic Vagal Nerve Stimulation Using a Novel Waveform Decreases Body Weight, Food Consumption, Adiposity, and Activity in Obesity-Prone Rats. *Obesity Surgery*, 34(1):1-14, (2024).
4. **Anyaso-Samuel S.**, Bandyopadhyay D, and Datta S. Pseudo-value regression of clustered current status data with informative cluster or subcluster sizes in a multistate model. *Statistical Methods in Medical Research*, 32(8):1494-1510, (2023).
3. **Anyaso-Samuel S.**, and Datta S. Adjusting for informative cluster size in pseudo-value based regression approaches with clustered time-to-event data. *Statistics in Medicine*, 42(13): 2162-2178 (2023).
2. **Anyaso-Samuel S.**, Sachdeva A., Guha S., and Datta S. Bioinformatics preprocessing of microbiome data with an application to metagenomic forensics. In *Statistical Analysis of Microbiome Data*, (pp. 45-78), Eds: S. Datta and S. Guha, Springer (2021).
1. **Anyaso-Samuel S.**, Sachdeva A., Guha, S., and Datta S. Metagenomic geolocation prediction using an adaptive ensemble classifier. *Frontiers in Genetics*, 12, p.642282 (2021).

IN
REVISION/REVIEW/
PREPARATION:

12. Abubakar, M., Shahin, S., ..., **Anyaso-Samuel, S.**, ..., Shi, J., Yang, X. Multi-platform spatial profiling reveals intra-tumor heterogeneity in immune and tumor markers in breast tumors from Kenyan patients. *Submitted to Cancer Research*.
11. Qin, F., Hua, X., ..., **Anyaso-Samuel, S.**, ..., Shi, J., Yu, K. Identification of immune cell type-specific susceptibility genes in multiple cancers using transcriptome-wide association studies. *Submitted to JNCI*.
10. Thakur, R., Xu, M., Thornock, A., Yon, J., **Anyaso-Samuel, S.**, ..., Shi, J., Brown, K. Functional characterization of the 9q34.13 melanoma risk locus identifies *RAPGEF1* as a melanoma risk and nevus gene linked to RAS activation. *Submitted to Cancer Discovery*.
9. **Anyaso-Samuel S.**, Li, S., ..., Albert, P., Shi, J. Identifying High-Dimensional Genomic Factors Modulating Biological Networks Across Multi-Omic Data.
8. **Anyaso-Samuel S.**, Albert, P., Shi, J. **MoSCNet**: a computational tool to uncover Genetic Modulators of Gene Expression Networks in Single-Cell RNA-Seq studies.
7. Thong, L., **Anyaso-Samuel, S.**, ..., Choi, J. Single-cell eQTL dataset of lung tissues from Asian never-smokers highlight the roles of alveolar epithelial cells in lung cancer etiology.
6. Ke, C., **Anyaso-Samuel S.**, Bandyopadhyay, D. Kernel-based Sufficient Dimension Reduction For Single-index Survival Model.
5. **Anyaso-Samuel, S.** and Ramos, M. Self-Reported Statistical Literacy and Conditional Willingness to Use Statistics in Everyday Decision-Making: Evidence from a National Survey of U.S. Adults. *Submitted to PlosOne*.
4. Li, F., **Anyaso-Samuel, S.**, ..., Vogtmann, E. Association between diet quality and the oral microbiome in three US cohort studies. *Submitted to The American Journal of Clinical Nutrition*.
3. Bather, J., **Anyaso-Samuel, S.**, Chen, Y., Elliott, L., Bennett, A., and Goodman, M. Cluster-weighted modified Poisson regression for estimating risk ratios in longitudinal data with informative cluster sizes. doi.org/10.1101/2025.05.23.25328253 *Submitted to BMC Medical Research Methodology* (2025+).
2. **Anyaso-Samuel S.**, and Datta S. Nonparametric estimation of a future entry time distribution given the knowledge of a past state occupation in a progressive multistate model with current status data. doi.org/10.48550/arXiv.2405.05781 *Submitted to Lifetime Data Analysis* (2025+).
1. **Anyaso-Samuel S.**, Bandyopadhyay, D., Datta, S. **mspack**: An R package for nonparametric estimation of temporal functions in a progressive multistate model with current status data.

OTHER ABSTRACTS

3. Ashby F., **Anyaso-Samuel S.**, Gamlin P., Kabbej N., Andraka N., Mandel R., Riva A., Datta S., Heldermon C. AAV-barcoding for High-throughput Screening of Vector Transduction Efficiency in the CNS of Cynomolgus Macaques Compared to C57BL/6 Mice. *Florida Genetics Symposium*, Gainesville, FL, (Nov. 2022).
2. Kabbej N., Ashby F.J., Riva A., **Anyaso-Samuel S.**, Datta S., Heldermon C.D. Transcriptomic Disparities Between Male and Female Non-Human Primates Related to AAV Transduction Efficiency. *American Society of Gene & Cell Therapy (ASGCT) 25th Annual Meeting*, Washington DC, (May 2022).
1. Ashby F., Kabbej N., Riva A., Rouse C.J., Hawkins K., Andraka N., **Anyaso-Samuel S.**, Gamlin P., Mandel R., Kondratov O., Zolotukhin S., Datta S., Heldermon C. Genetic Barcoding

Identifies Similar Transduction Efficiency Rankings within Disease Models of Sanfilippo Syndrome Type-B and Controls. *19th Annual WORLD Symposium*, Orlando, FL, (Feb. 2022).

PRESENTATIONS

Invited Talks & Mini-symposiums

- Identifying high-dimensional genomic factors associated with biological networks, *Department of Biostatistics at Virginia Commonwealth University* (Aug. 2025).
- Inference for current status observations in a multi-state setting, *Department of Statistical Sciences and Operations Research at Virginia Commonwealth University* (Aug. 2025).
- Early career panel: Transition from graduate school to the workplace, *2025 Diversity Mentoring Workshop at the Joint Statistical Meetings*, NASHVILLE, TN (Aug. 2025).
- Nonparametric estimation of a future state occupation given the knowledge of a past state occupation in a multistate model with current status data, *2025 Lifetime Data Science Conference*, BROOKLYN, NY (May 2025).
- Identifying High-Dimensional Genomic Factor Associations in Biological Networks, *Department of Quantitative Health Sciences at the University of Hawai'i* (Apr. 2025).
- Estimating marginal association in clustered data with informative subgroups induced by a given covariate, *The 7th International Conference on Econometrics and Statistics*, BEIJING, CHINA (July 2024) [virtual presentation].
- Regression analysis for clustered multistate current status data using the pseudo-value approach, *2023 Symposium on Data Science & Statistics*, ST. LOUIS, MO (May 2023).
- Regression analysis of clustered time-to-event data when the cluster size is informative: a pseudo-value approach, *Department of Epidemiology and Biostatistics*, West Virginia University (Mar. 2023).
- Pseudo-value-based regression analysis of clustered multistate time-to-event data when the cluster size is informative, *Biostatistics Branch*, National Cancer Institute (Mar. 2023).
- Regression analysis of clustered time-to-event data when the cluster size is informative, *Division of Computing, Analytics, and Mathematics*, University of Missouri, KANSAS CITY (Feb. 2023).
- Regression analysis of clustered time-to-event data when the cluster size is informative, *UFSTAT Student Seminar Series*, GAINESVILLE, FL (Feb. 2023).
- Bioinformatics Pre-processing of Microbiome Data with an Application to Metagenomics Forensics, *2021 Joint Statistical Meetings*, VIRTUAL CONFERENCE (Aug. 2021).
- Metagenomic Geolocation Prediction Using an Adaptive Ensemble Classifier, *28th Conference on Intelligent Systems for Molecular Biology*, VIRTUAL CONFERENCE (July 2020).
- Fuzzy Regression Intervals, Graduate Student Seminar, *Department of Mathematics*, Boise State University, BOISE, ID (Dec. 2017).

Contributed Talks

- Identifying high-dimensional genomic factors associated with biological networks, *2025 Joint Statistical Meetings*, NASHVILLE, TN (Aug. 2025).
- Can the unit size predict outcomes? Testing for informativeness in three-level designs, *2025 ENAR Spring meeting*, NEW ORLEANS, LA (Mar. 2025).
- Nonparametric estimation of a future state occupation given the knowledge of a past state occupation in a multistate model with current status data, *2024 Joint Statistical Meetings*, PORTLAND, OR (Aug. 2024).
- Testing for Marginal Covariate Effect when the Subgroup Size Induced by the Covariate is In-

formative, 2024 ENAR Spring meeting, BALTIMORE, MD (Mar. 2024).

- Regression analysis of multistate current status data with informative cluster sizes: a pseudo-value approach, *UF PHHP Research Day 2023*, GAINESVILLE, FL (Feb. 2023).
- Adjusting for Informative Cluster Size in Pseudo-Value-Based Regression Approaches with Clustered Time-to-Event Data, 2022 Joint Statistical Meetings, WASHINGTON DC (Aug. 2022).
- Pseudo-value based regression for clustered time-to-event data when cluster size is informative, *UF PHHP Research Day 2022*, VIRTUAL CONFERENCE (Feb. 2022).
- Bioinformatics Pre-processing of Microbiome Data with an Application to Metagenomics Forensics, *UF PHHP Research Day 2021*, VIRTUAL CONFERENCE (Feb. 2021)

Posters

- Identifying high-dimensional genomic factors associated with biological networks, *NIH Research Festival*, BETHESDA, MD (Sept. 2025).
- Testing for Marginal Covariate Effect When the Subgroup Size Induced by the Covariate is Informative, *Blackwell-Tapia Conference*, PROVIDENCE, RI (Nov. 2024).
- Testing for Marginal Covariate Effect When the Subgroup Size Induced by the Covariate is Informative, *The Southern Regional Council on Statistics 59th Summer Research Conference*, CLEMSON, SC (June 2024).
- Pseudo-Value Regression of Clustered Current Status Data with Informative Cluster or Subcluster Sizes in a Multistate Model, *2023 Lifetime Data Science Conference*, RALEIGH, NC (May 2023).
- Pseudo-Value Regression of Clustered Current Status Data with Informative Cluster or Subcluster Sizes in a Multistate Model, *2023 Annual ASA Florida Chapter Meeting*, GAINESVILLE, FL (Mar. 2023).
- Pseudo-Value Regression of Clustered Current Status Data with Informative Cluster or Subcluster Sizes in a Multistate Model, *2023 ENAR Spring meeting*, NASHVILLE, TN (Mar. 2023).
- Pseudo-value based regression for clustered time-to-event data when cluster size is informative, *2022 International Chinese Statistical Association (ICSA) Applied Statistics Symposium*, GAINESVILLE, FL (June 2022).
- Pseudo-value based regression for clustered time-to-event data when cluster size is informative, *UF College of Medicine Research Day 2022*, GAINESVILLE, FL (Apr. 2022).
- EWMA Control Chart with a Dynamic Sampling Scheme, *2019 Quality and Productivity Research Conference*, WASHINGTON D.C. (June 2019).
- Dynamic Sampling Versions of Popular SPC charts for Big Data Analysis, *2019 IMS/ASA Spring Research Conference*, BLACKSBURG, VA. (May 2019).
- Statistical Process Control Charts for Monitoring Big Data Streams, *Workshop on Emerging Data Science Methods for Complex Biomedical and Cyber Data*, AUGUSTA, GA. (Mar. 2019).
- Using Data Science to help Idaho cities make hiring decisions, *Boise State University Service-learning student exhibition*, BOISE, ID. (Dec. 2018).
- Some contributions to the interpretation of Fuzzy Regression Intervals, *Computing Research Association URMD Workshop*, SAN DIEGO, CA. (Mar. 2018).

GRANTS

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| | Brain Rehabilitation Research Projects Studies Agency: U.S. Department of Veterans Affairs (PI: D. Clark, R. M. Bauer) Grant Type: IPA Grant Role: Statistician | Aug. 2020 - Aug. 2023 |
| | WISE II - Obesity and Type-2 Diabetes: Bariatric Surgery Effects on Brain Function Studies Agency: NIH/NIDDK (PI: E. Porges) Grant Type: R01 DK099334-06A1 Grant Role: Graduate Research Assistant | Nov. 2022 - Aug. 2023 |

SOFTWARE

6. **Anyaso-Samuel S.**, Albert, P.S., Shi, J. [GFBioNet](#) is an R package that learns a network for biological traits via Gaussian graphical modeling and maps genomic factors modulating specific edges using node-wise regression. It reports *trait-trait-factor* triplets with robust false-discovery control, even under strong predictor correlation.
5. **Anyaso-Samuel S.** and Datta S. [crspack](#) R package to conduct inference based on rank-sum statistics for cluster-correlated data with informativeness of the total cluster size, informativeness of a binary covariate distribution or informativeness of a subject-level covariate distribution.
4. **Anyaso-Samuel S.**, Bandyopadhyay D., and Datta S. [mspack2](#). R package for estimating several temporal functions (e.g. state occupation probabilities) for current-status data from of a general multistate model. The code estimates the SOP for the setting where the current-status data is either uncorrelated or cluster-correlated.
3. **Anyaso-Samuel S.** and Datta S. [pseudoReg-ICS](#). R program for estimating the state occupation probability for cluster-correlated data from a multistate model. The program allows for adjusting for informative cluster size.
2. **Anyaso-Samuel S.**, Sachdeva A., Guha S., and Datta S. [metagenomic_data_analysis](#) Suite of programs for the bioinformatics pre-processing and downstream analysis of raw sequence metagenomics data.
1. **Anyaso-Samuel S.**, and Mukherjee P. [DyAEWMA](#) R package for estimating the average time to signal (ATS) of an adaptive EWMA chart with a dynamic sampling scheme or the average run length (ARL) of the adaptive EWMA chart.

TEACHING EXPERIENCE

Short courses

- **Division of Cancer Epidemiology & Genetics, National Cancer Institute** **Feb. 2025**
Co-instructor for the course “Multistate models for studying the natural history of cancer” delivered to staff and fellows within the division as part of a lecture series on statistical modeling in cancer epidemiology.
- **Fostering Excellence in Biostatistics, ENAR** **Mar. 2025**
Co-instructor for the course “Introduction to Statistical Analysis using R” delivered to high school and undergraduate students.

Regular courses

- **Department of Biostatistics**, University of Florida

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| | <i>Instructor</i> | Fall 2022 |
| | <ul style="list-style-type: none"> • STA 6177 - Applied Survival Analysis. | |
| | <i>Guest lecturer</i> | Spring 2021, Spring 2022 |
| | <ul style="list-style-type: none"> • PHC 7066: Large Sample Theory. - Gave lectures on <i>Modes of convergence</i> and <i>Asymptotic normality of the MLE</i> to PhD students. | |
| | <i>Teaching Assistant</i> | Fall 2019 - Summer 2023 |
| | <ul style="list-style-type: none"> • PHC 6937: Bayesian Biostatistical Methods • PHC 6089: Public health computing • PHC 6937: Frontiers in Biostatistics • PHC 6937: Introduction to Applied Biostatistical Computing Using SAS • PHC 6052: Introduction to Biostatistical Methods • PHC 6937: Data Visualization in the Health Sciences • PHC 6092: Introduction to Biostatistical Theory | |
| | <ul style="list-style-type: none"> • Department of Mathematics, Boise State University | |
| | <i>Instructor</i> | Fall 2017, Fall 2018, Spring 2019 |
| | <ul style="list-style-type: none"> • MATH 149: Pre-Calculus. • MATH 108: Intermediate Algebra. | |
| | <i>Tutor</i> | Spring 2018 |
| | <ul style="list-style-type: none"> • Tutored students enrolled in <i>Intermediate Algebra</i>, <i>College Algebra</i> and <i>Pre-calculus</i> classes. | |
| PROFESSIONAL DEVELOPMENT | Preparing Future Faculty <i>Center for Teaching Excellence, University of Florida</i> | Aug. 2022 - Dec. 2022 |
| SERVICE | Scholarly Journal Refereeing | |
| | Referee for <i>Biometrics</i> , <i>Statistical Methods in Medical Research</i> , <i>Statistics in Medicine</i> , <i>Journal of Applied Statistics</i> , <i>Biometrical Journal</i> , <i>Lifetime Data Analysis</i> , <i>Sankhya B</i> , <i>Scientific Reports</i> , <i>BMC Medical Research Methodology</i> , <i>Pharmaceutical Statistics</i> . | |
| | Conference Session Organizer/Chair | |
| | <ul style="list-style-type: none"> • 2025 <i>Joint Statistical Meetings</i> – Innovations in Biological Network Modeling: Unraveling Omics Data Analysis • 2025 <i>Lifetime Data Science Conference</i> – Beyond Right-censoring: Unveiling New Insights with Interval-censored Data Models • 2025 <i>Eastern North American Region, Spring meeting</i> – Innovative Strategies for Integrating Epidemiology and Biostatistics in Cervical Cancer Screening • 2024 <i>Joint Statistical Meetings</i> – Recent advances in the analysis of multistate survival models • 2024 <i>Eastern North American Region, Spring meeting</i> – Advances in Epidemiologic Methods • 2023 <i>Symposium on Data Science & Statistics</i> – Methods in Health & Medical Research • 2023 <i>Eastern North American Region, Spring meeting</i> – Clustered data methods | |
| | Conference & Seminar Service | |

- Poster Judge for 2025 NIH Graduate Student Research Symposium
- Planning Committee Member for 2025 ENAR Fostering Diversity in Biostatistics Workshop
- Poster Judge for 2025 ENAR Spring Meeting's Student Poster Competition
- Judge for 2025 ASA Lifetime Data Science Section Student Paper Awards

Department Service

- *Fellows' representative*, Biostatistics Branch, DCEG, NCI (Aug. 2025 - Present)
- *Member*, Student recruitment committee; Department of Biostatistics, UF (Nov. 2021 - Apr. 2023).
- *Vice President*, Biostatistics Students' Organization, UF (Sept. 2021 - Sept. 2022).
- *President*, Biostatistics Students' Organization, UF (Sept. 2022 - Apr. 2023).

**PROFESSIONAL
MEMBERSHIPS**

American Statistical Association
Eastern North American Region, International Biometric Society

COMPUTER SKILLS

General Software

- *Operating systems*. WINDOWS, LINUX and MACOS.
- *Productivity applications*. Advanced skills in WORD, EXCEL, and POWERPOINT.

Computing & Programming

- *Parallel Computing* in selected scripting languages.
- Extensive experience with R/RStudio, C++, MATLAB, PYTHON/JUPYTER, UNIX, LATEX.
- Intermediate experience with SAS, STATA, SPSS.
- Version control: [GitHub](#) user @samuelanyaso

Bioinformatics

- Extensive experience in building pipelines for pre-processing and analysis of large-scale sequencing data.
- Downstream analysis of -omics data.

REFEREES

Available upon request.