

## Suthakaran Ratnasingam, Ph.D.

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### EDUCATION

- **Bowling Green State University, Bowling Green, OH, USA**  
*PhD in Statistics* Aug 2020  
*Advisor: Prof. Wei Ning*
- **University of Nebraska at Omaha, Omaha, NE, USA**  
*MA in Mathematics* Dec 2015  
*Advisor: Prof. Steven G. From*
- **University of Peradeniya, Peradeniya, Sri Lanka**  
*Postgraduate Diploma in Applied Statistics* July 2013  
*BSc (Hons) in Statistics and Operations Research* Aug 2010

### RESEARCH INTERESTS

Change Point Analysis, Sequential Analysis, High-dimensional Statistics, Extreme Value Analysis, Confidence Distributions, Empirical Likelihood, Bounds & Inequalities.

### PROFESSIONAL EXPERIENCES

- **Assistant Professor** Aug 2020 - Present  
*Department of Mathematics*  
*California State University, San Bernardino, CA, USA*
- **Graduate Teaching Associate** Aug 2016 - Aug 2020  
*Department of Mathematics and Statistics*  
*Bowling Green State University, Bowling Green, OH, USA*
- **Graduate Teaching Assistant** Aug 2014 - Dec 2015  
*Department of Mathematics*  
*University of Nebraska at Omaha, Omaha, NE, USA*
- **Lecturer** March 2014 - Aug 2014  
*Department of Mathematics and Computer Science*  
*The Open University of Sri Lanka, Nawala, Sri Lanka*
- **Teaching Assistant** Nov 2012 - March 2014  
*Department of Mathematics & Philosophy of Engineering*  
*The Open University of Sri Lanka, Nawala, Sri Lanka*

## AWARDS & SCHOLARSHIPS

- Academic Affairs Research Assigned Time Awards AY 23-24
- OSR Undergraduate Summer Research Program Award, CSUSB Summer 2022
- Faculty Summer Research Fellowship, CSUSB Summer 22, 23
- Graduate College Distinguished Dissertation Award, Bowling Green State University 2020 - 2021
- J Robert and Gretchen Overman Scholarship, Department of Mathematics and Statistics, Bowling Green State University 2020 - 2021
- UNO Advantage Scholarship, University of Nebraska at Omaha 2014 - 2015
- Mahapola Higher Education Scholarship for the Performance in G.C.E (A/L), Sri Lanka 2006 - 2010

## ARTICLES IN PEER REVIEWED JOURNALS

(\* - denotes co-first authors, <sup>†</sup> - denotes undergraduate/graduate students)

- [16] **Ratnasingam, S.** & Muñoz-Lopez, J.<sup>†</sup> (2023) Distance Correlation-Based Feature Selection in Random Forest, *Entropy*, 25(9), 1250.
- [15] Gu, C.\* & **Ratnasingam, S.\*** (2023) Real-Time Change Point Detection in Linear Models Using the Ranking Selection Procedure. *Sequential Analysis*, 42(2), 129-149.
- [14] Karunanithy, R., **Ratnasingam, S.**, Holland, TE. & Sivakumar, P. (2023) Sensitive Detection of Human Epididymis Protein-4 (HE4) Ovarian Cancer Biomarker through Sandwich Type Immunoassay Method with Laser-Induced Breakdown Spectroscopy. *Bioconjugate Chemistry*, 34(3), 501–509.
- [13] **Ratnasingam, S.**, & Ning, W. (2023) Change Point Detection in Linear Failure Rate Distribution Under Random Censorship. *Journal of Statistical Theory and Practice*, 17(1), 1-22.
- [12] **Ratnasingam, S.**, & Ning, W. (2023) Confidence Intervals of Mean Residual Life Function in Length-Biased Sampling Based on Modified Empirical Likelihood. *Journal of Biopharmaceutical Statistics*, 33 (1), 114-129.
- [11] From, S. G., & **Ratnasingam, S.** (2022) Some Efficient Closed-Form Estimators of the Parameters of the Generalized Pareto Distribution. *Environmental and Ecological Statistics*, 29(4), 827–847.
- [10] **Ratnasingam, S.**, Buzaianu, E. & Ning, W. (2022) Modified Information Criterion for Testing Changes in Generalized Lambda Distribution Model Based on Confidence Distribution. *Communications for Statistical Applications and Methods*, 29(3), 301-317.
- [9] From, S. G., & **Ratnasingam, S.** (2022) Some New Inequalities for the Beta Function and Certain Ratios of Beta Functions. *Results in Applied Mathematics*, 15, 100302.
- [8] Li, M., **Ratnasingam, S.**, & Ning, W. (2022) Empirical-Likelihood-Based Confidence Intervals for Quantile Regression Models with Longitudinal Data. *Journal of Statistical Computation and Simulation*, 92(12), 2536-2553.
- [7] **Ratnasingam, S.**, & Ning, W. (2021) Monitoring Sequential Structural Changes in Penalized High-Dimensional Linear Models. *Sequential Analysis*, 40(3), 381-404.
- [6] From, S. G., & **Ratnasingam, S.** (2021) Some New Bounds for Moment Generating Functions of Various Life Distributions Using Mean Residual Life Functions. *Journal of Statistical Theory and Practice*, 15(2), 1-14.
- [5] **Ratnasingam, S.**, & Ning, W. (2021) Modified Information Criterion for Regular Change Point Models Based on Confidence Distribution. *Environmental and Ecological Statistics*, 28(2), 303-322.
- [4] **Ratnasingam, S.**, & Ning, W. (2021) Sequential Change Point Detection for High-Dimensional Data Using Nonconvex Penalized Quantile Regression. *Biometrical Journal*, 63(3), 575-598.

- [3] **Ratnasingam, S.**, & Ning, W. (2020) Statistical Inference for the Lomax-Linear Failure Rate Distribution. *Far East Journal of Theoretical Statistics*, 59(1), 35-58.
- [2] **Ratnasingam, S.**, & Ning, W. (2020) Confidence Distributions for Skew Normal Change Point Model Based on Modified Information Criterion. *Journal of Statistical Theory and Practice*, 14(3), 1-21.
- [1] From, S. G., & **Ratnasingam, S.** (2016), Some New Refinements of the Arithmetic, Geometric and Harmonic Mean Inequalities with Applications, *Applied Mathematical Sciences*, 10(52), 2553-2569.

#### ARTICLES UNDER REVIEW

- [3] **Ratnasingam, S.**, Butenko, A.<sup>†</sup> (2023+) *U*-Statistics Based Jackknife Empirical Likelihood Tests for the Generalized Lorenz Curves (*arXiv*).
- [2] **Ratnasingam, S.**, Wallace, S.<sup>†</sup>, Amani, I.<sup>†</sup>, Romero, J.<sup>†</sup> (2023+) Nonparametric Confidence Intervals for Generalized Lorenz Curve Using Modified Empirical Likelihood (*arXiv*).
- [1] **Ratnasingam, S.**, & RDP Gamage (2023+) Empirical Likelihood Change Point Detection in Quantile Regression Models with Application to Urinary Glycosaminoglycans (GAGs) Data.

#### CONFERENCE PROCEEDINGS

- [2] **Ratnasingam, S.**, Perera, K., Wikramanayake, N. (2014), Rainfall Intensity-Duration-Frequency Relationship for Colombo Region in Sri Lanka, *Proceedings of the SAIM Research Symposium on Engineering Advancements*, 101-104pp, 26th April, ISBN 978-955-0638-03-1.
- [1] **Ratnasingam, S.**, Perera, K., Wikramanayake, N. (2014), Identify the Best Probability Distribution for Daily Maximum Rainfall in Colombo, Sri Lanka, *Proceedings of the International Conference on Mathematical Modeling*, 89-93pp, 14th March, ISBN 978-955-046-054-0.

#### STUDENTS SUPERVISED

- Graduate Students:
  - MA Thesis
    - [2] Jose Muñoz-Lopez (*Spring 2023*)  
*Title: Distance Correlation Based Feature Selection in Random Forest*
    - [1] Anton Butenko (*Spring 2023*)  
*Title: Jackknife Empirical Likelihood Tests for Equality of Generalized Lorenz Curves*
- Undergraduate Students:
  - Independent Study
    - \* Students: Alfonso Perez (Spring 2022), Jordan Davis (Fall 2022)
  - NSF Funded Research for Students at Minority Serving Institutions - The Data Mine AY 2022 - 2023
    - \* Students: Fabian Torres, Keylin Serrano, Jade Romero, & Quincy Autry
  - Undergraduate Summer Research Program - OSR Summer 2022
    - \* Project Title: *Nonparametric Confidence Intervals for Generalized Lorenz Curve Using Modified Empirical Likelihood*

\* Students: Imran Amani, Jade Romero & Spencer Wallace

## R PACKAGES

- **IneqBetaFun**

This R package provides several new upper and lower bounds for the Beta function and the quotient of Beta functions proposed in *From and Ratnasingam (2022)*.

- **EfficientClosedGPD**

This R package provides some efficient closed-form estimators of the parameters of the Generalized Pareto Distribution proposed in *From and Ratnasingam (2022)*.

## SEMINAR & CONFERENCE PRESENTATIONS

- *Invited:* Sequential Change Point Analysis in High-Dimensional Linear Models - Department of Mathematics, Millersville University, PA March 23, 2023
- *Contributed:* Monitoring Sequential Structural Changes in Penalized High-Dimensional Linear Models - Joint Statistical Meetings in Washington, DC Aug 6 - 11, 2022
- *Contributed:* Real-Time Change Point Detection in High-Dimensional Linear Models - Annual Meeting WNAR / IMS / JR (online) June 10 - 11, 2022
- Sequential Change Point Detection for High-Dimensional Data using Non-convex Penalized Quantile Regression - Colloquium, Department of Mathematics, CSUSB Oct 09, 2020
- Confidence Distribution - Statistics Seminar, Department of Mathematics & Statistics, Bowling Green State University Sep 19, 2018

## CONFERENCES & WORKSHOPS

- 2022 Joint Statistical Meetings in Washington, DC August 6 - 11, 2022
- WNAR/IMS/JR Annual Meeting (online) June 10 - 11, 2022
- OCLB ASA Application of Statistical Inference through Data Science Techniques Nov 06, 2020
- 25<sup>th</sup> Distinguished Statistician Colloquium Oct 14, 2020
- Integrating Big Data into Surveillance Models to Inform Decision Making for COVID-19 Oct 23, 2020
- Advocating for Student of Color: There's More You Can Do Sep 25, 2020
- OCLB ASA 2020 Q3 Quarterly Social - Research Showcase Sep 14, 2020
- CourseKata Summer Workshop, CSUSB June 22 - July 24
- Teaching Statistics with Simulation-Based Inference Workshop April 03, 2020

## CLASSES TAUGHT

- California State University - San Bernardino, CA, USA
  - Math 2265 - Statistics with Applications  
Fall 20, Spring 21 (2 sections), Fall 21 (2 sections), Spring 22 (2 sections), Summer 22, Fall 22, Spring 23, Summer 23, Fall 23 (2 sections)
  - Math 3460 - Probability Theory  
Fall 20 (2 sections)

- Math 3465 - Computational Statistics  
Fall 22
- Math 4320 - Introduction to Actuarial Modeling  
Spring 23
- Math 4360 - Linear Statistical Models  
Fall 21, Fall 23
- Math 5565 - Mathematical Statistics  
Spring 22, Spring 23
- Math 5953 - Independent Study  
Spring 22, Fall 22
- Math 6953 - Graduate Independent Study  
Fall 22
- Bowling Green State University, OH, USA
  - Math 1150 - Introduction to Statistics (several sections)
- University of Nebraska at Omaha, NE, USA
  - Several lower-division undergraduate courses
- The Open University of Sri Lanka, Nawala, Sri Lanka
  - Upper- and lower-division undergraduate courses

## **PROFESSIONAL DEVELOPMENT**

- Canvas Summer Institute, CSUSB Summer 2022
- Best Practices in Cosynchronous Teaching, CSUSB Spring 2022
- Essentials of Teaching with Canvas, CSUSB Spring 2022
- FCE Certificate in High Impact Practices (HIPs) - Teaching & Learning Track, CSUSB Spring 2021
- FCE Certificate in Large Lectures in Distance Learning, CSUSB July 27 - Aug 7, 2020
- ISSUES-X Summer Institute, CSUSB July 13 -17, 2020

## **SERVICES**

- Faculty Judge for the 2023 Outstanding Thesis/Project Award Selection AY 22-23
- Served on the Math Department Statistics Faculty Search Committee AY 22-23
- Judge for the science and engineering projects of students in the junior division (grades 6-8) and senior division (grades 9-12) at the San Bernardino, Inyo, and Mono Science and Engineering Fair (SIMSEF) in 2023
- Volunteered on the Data Analytics Working Group at CSUSB. Spring 2022, Fall 2022
- Needs Assessment Study for Math Department's New Undergraduate Statistics Minor and Major Programs. Fall 2021
- Served on the Statistics Minor/Major Program Committee in the Mathematics Department, CSUSB. Spring 2021 - Fall 2021
- Served on the Data Analytics Certificate Committee - College of Natural Sciences, CSUSB. Spring 2021 - Fall 2021
- Science Olympiad - Bowling Green State University, OH, USA March 09, 2019
- Participated Seven Day Service - University of Nebraska at Omaha, NE, USA Fall 2014
- Worked as a volunteer at UNO's Global Study Conference Fall 2014
- Representative of the Staff - Student Consultative Committee in the Faculty of Science, University of Peradeniya 2007 - 2008

## **REVIEWER FOR THE JOURNALS**

- *Entropy*
- *Journal of Applied Statistics*
- *Mathematics - MDPI*
- *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*

## **PROFESSIONAL AFFILIATIONS**

- |                                       |                |
|---------------------------------------|----------------|
| • Mathematical Association of America | 2014 - Present |
| • American Mathematical Society       | 2014 - Present |
| • Statistics Without Borders          | 2019 - Present |

## **TECHNICAL SKILLS**

- Operating Platforms: Windows & Linux.
- Statistical Software: R, Python, SAS, JMP, Minitab, SPSS, Matlab.
- Application:  $\text{\LaTeX}$ , GitHub.