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

- PATHS Undergraduate Summer Research Program Award, CSUSB — Summer 2024
- Academic Affairs Research Assigned Time Awards, CSUSB — Spring 24, 25
- Faculty Summer Research Fellowship, CSUSB — Summer 22, 23, 24
- OSR Undergraduate Summer Research Program Award, CSUSB, USA — Summer 2022
- 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, USA — 2020 - 2021
- UNO Advantage Scholarship, University of Nebraska at Omaha, USA — 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, † - denotes undergraduate/graduate students)

[19] Li, M., **Ratnasingam, S.**, Tian, Y., & Ning, W. (2024) Change Point Detection in Length-biased Lognormal Distribution, *Communications in Statistics - Simulation and Computation*.

[18] **Ratnasingam, S.**, & Gamage, R. D. P. (2024) Empirical Likelihood Change Point Detection in Quantile Regression Models, *Computational Statistics*.

[17] **Ratnasingam, S.**, Wallace, S.†, Amani, I.†, & Romero, J.† (2024) Nonparametric Confidence Intervals for Generalized Lorenz Curve Using Modified Empirical Likelihood, *Computational Statistics*, 39, 3073–3090.

[16] **Ratnasingam, S.** & Muñoz-Lopez, J.† (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

[4] **Ratnasingam, S.** A Novel Change Point Detection Method for Genomic Sequences. *(Submitted)*

[3] Gu, C.* & **Ratnasingam, S.*** Change Point Detection in SCAD Penalized Panel Models. *(Submitted)*

[2] From, S. G., & **Ratnasingam, S.** New Upper and Lower Bounds for the Upper Incomplete Gamma Function. *(Submitted)*

[1] **Ratnasingam, S.**, Butenko, A.† *U*-Statistics Based Jackknife Empirical Likelihood Tests for the Generalized Lorenz Curves *(arXiv)*.

Conference Proceedings

[2] **Ratnasingam, S.**, Perera, K., Wikramanayake, N. (2014), Rainfall Intensity-DurationFrequency Relationship for Colombo Region in Sri Lanka, *Proceedings of the SAITM 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
    [4] Angela Van Sant *(Expected Fall 2025)*
    [3] Alexis Wallace *(Spring 2024)*

Title: Information Based Approach for Detecting Change Points in Inverse Gaussian Models with Applications.

[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:
  - Cal-Bridge student mentor - Timothy Perez
  - U-Rise student mentor - Timothy Perez
  - 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
  - Riverside Community College (RCC)/CSUSB STEM Connect Research Experience - Summer 2024

    [2] Project title: Predicting Student Performance: A Comparative Analysis of Statistical Models
    - Students: Briseida Cordero Garcia & Briseida Sanchez Acosta

    [1] Project title: Computing Exoplanets' Missing Values
    - Students: Syed Moiz, Emma Wuysang, David Sosa & Julian Vara
  - Undergraduate Summer Research Program - OSR

    [2] Summer 2024

    Project Title: *Variance Change Points in Gaussian Model Using Modified Information Criterion*
    - Students: Sarah Chuang, Andreas Hauck, & Timothy Perez

    [1] 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

- *Contributed:* Change Point Detection in SCAD-penalized Dynamic Panel Models - Joint Statistical Meetings in Portland, OR — Aug 3 – 8, 2024
- *Contributed:* Jackknife Empirical Likelihood Tests for Equality of Generalized Lorenz Curves - Annual Meeting WNAR/IBS/Graybill in Fort Collins, CO — June 9 – 12, 2024

- *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

- 2024 WNAR/IMS/Graybill Annual Meeting, Fort Collins, Colorado June 09 - 12, 2024
- 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^{th} 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 1601 - Modeling with Calculus
    Summer 24
  - 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 2310 - Applied Linear Algebra
    Spring 24
  - Math 3460 - Probability Theory
    Fall 20 (2 sections)
  - Math 3465 - Computational Statistics
    Fall 22
  - Math 3953 - Directed Study
    Fall 22, Spring 23, Fall 23, Spring 24
  - 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, Spring 24
  - Math 5953 - Independent Study
    Spring 22, Fall 22, Fall 23, Spring 24
  - Math 6953 - Graduate Independent Study
    Fall 22, Fall 23
- Bowling Green State University, OH, USA
  - Math 1150 - Introduction to Statistics (several sections) (face-to-face & online)
- 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 2024 Outstanding Thesis/Project Award Selection — AY 23-24
- Juror for the 13th Annual "Meeting of the Minds" Student Research Symposium — Spring 2024
- 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) 2023, 2024
- 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: LaTeX, GitHub.