Thevasha Sathiyakumar

PhD · Mathematics

Clarkson University, Potsdam, NY, 13676

sathiyt@clarkson.edu | https://www.researchgate.net/profile/Sathiyakumar-Thevasha |

https://scholar.google.com/citations?user=XAmHs3cAAAAJhl=en

Career objective

Dedicated mathematician and educator with a strong background in applied mathematics, statistics, and data science. Currently a Visiting Assistant Professor in the Department of Mathematics at Clarkson University, holding a Ph.D. in Mathematics from Clarkson University. My dissertation, *"Modern Methods for Statistical Modeling and Inference with Applications to Biomedical Data"*, developed novel data-driven topological methods to analyze complex collective behaviors in cell migration. My broader research expertise spans topological data analysis and statistical modeling to uncover latent patterns in high-dimensional biological data. I am actively engaged in interdisciplinary projects applying statistical modeling and data visualization techniques to epidemiology, public health, and microbiome studies. With over eight years of combined teaching and research experience, I am committed to fostering an engaging, inclusive, and research-driven academic environment. My long-term goal is to pursue a teaching and research-focused academic career, advancing applied mathematics, statistics, and data science in both theoretical and applied contexts.

Education

Clarkson University — *Potsdam, NY, USA*
PhD Mathematics — *2018 - August 2024*
- Advisors: Dr. S. Mondal, Dr. M. Budišić
- Dissertation: *Modern Methods for Statistical Modeling and Inference with Applications to Biomedical Data*

Clarkson University — *Potsdam, NY, USA*
M.Sc Mathematics — *2018 - 2020*
- GPA: 3.8/4.0

University of Sri Jayewardenepura — *Gangodawila, Sri Lanka*
B.Sc Mathematics — *2013- 2016*
- GPA: 3.9/4.0

Awards and Honors

Spring 2026	**Faculty Success and Development fund**, Recipient of Faculty Success and Development funding opportunity, Coppin State University
April 2024	**Yazhan Jiang Award**, Outstanding teaching assistant award from Department of Mathematics, Clarkson University
April, 22nd 2023	**Second best oral presentation**, 14th annual Probability and Statistics day, University of Maryland, Baltimore County, USA
May 2023	**SIAM student travel award**, Acceptance for SIAM Conference on Applications of Dynamical Systems (DS21), National Science Foundation (NSF) student travel support
April, 2023	**CUGSA travel grant**, Clarkson university graduate student association travel grant to participate in UMBC's Probability and Statistics conference
May 2021	**SIAM student travel award**, SIAM Conference on Applications of Dynamical Systems (DS21), National Science Foundation (NSF)
April 2020	**Award for best graduate lightning talk in Biomedical studies**, The fourth annual spring research project showcase, Clarkson University
Sept 2017	**Dr. Sirimathi Wewala Memorial Gold medal for best performance in Mathematics at the Bachelor of Science (Special) Degree**, 43rd AnnualConvocation of University of Sri Jayawardenepura
Sept 2017	**Dr. Sunethra Weerakoon Gold medal for best performance in BSc. Mathematics Examination**, 43rd AnnualConvocation of University of Sri Jayawardenepura

Professional Experience

Feb 2026-present	**Assistant Professor**, Department of Mathematics and Computer Science, Coppin State University, Baltimore, MD, USA
August 2025 to Jan 2026	**Visiting Assistant Professor**, Department of Mathematics, Clarkson University, Potsdam, NY, USA
August 2024 to June 2025	**Visiting Assistant Professor**, MS Applied Data Science Program Clarkson University, Potsdam, NY, USA
8^{th} to 12^{th} July 2024	**Mathematics instructor**, Horizons program, Clarkson University, Potsdam, NY, USA
May 2024 to July 2024	**Graduate student coordinator**, Mathematical Biology Team Science Research Experience for Undergrad (MBioTS REU), Clarkson University, Potsdam, NY, USA
2018 to June 2024	**Graduate teaching assistant**, Department of Mathematics, Clarkson University, Potsdam, NY, USA
June 2017 to June 2018	**Temporary lecturer**, Department of Mathematics, University of Sri Jayewardenepura, Sri Lanka
Jan 2017 to May 2017	**Mathematics demonstrator**, Department of Mathematics, University of Sri Jayewardenepura, Sri Lanka

Publications

Published Works (Google Scholar Citations: 115)

9. Dodamgodage, S., Sathiyakumar, T., Fuller, D. T., Sur, S., Mondal, S., & Pal, N. (2025). Maximum likelihood estimation for the Dirichlet distribution. Communications in Statistics - Theory and Methods, 1–14

8. Sathiyakumar, T. (2024) Modern methods for statistical modeling and inference with applications to biomedical data, Clarkson University; 2024.

7. Vasireddy D, Sathiyakumar T, Mondal S, et al. (July 28, 2023) Factors Affecting Human Papillomavirus Vaccine Trends in the United States of America. Cureus 15(7): e42617. doi:10.7759/cureus.42617

6. Chaipitakporn C, Athavale P, Kumar V, Sathiyakumar T, Budišić M, Sur S and Mondal S (2022) COVID-19 in the U.S. during pre-vaccination period: Shifting impact of sociodemographic factors and air pollution. Front. Epidemiol. 2:927189. doi: 10.3389/fepid.2022.927189

5. Sathiyakumar T, Vasireddy D, Mondal S (2021) Impact of Sociodemographic Factors on Dental Caries in Children and Availing Fluoride Treatment: A Study Based on National Survey of Children's Health (NSCH) Data 2016-2019. Cureus 13(9): e18395. doi:10.7759/cureus.18395

4. Vasireddy D, Sathiyakumar T, Mondal S, et al. (2021) Socioeconomic Factors Associated With the Risk and Prevalence of Dental Caries and Dental Treatment Trends in Children: A Cross-Sectional Analysis of National Survey of Children's Health (NSCH) Data, 2016-2019. Cureus 13(11): e19184. doi:10.7759/cureus.19184

3. Ali Boolani, Chelsea Yager, Matthew Lee Smith, Sumona Mondal, Thevasha Sathiyakumar, Dinushani Senarathna, Seema Teymouri, Christina Vogel Rosbrook, Julieth Alvarez, Phylicia Taladay, Rebecca Martin, (2019) 43 State Mental Energy Influences Posture During Vision-Occluded States, Age and Ageing, Volume 48, Issue Supplement_4, Pages iv9–iv12, https://doi.org/10.1093/ageing/afz164.43

2. G. H. J. Lanel, H. K. Pallage, J. K. Ratnayake, S. Thevasha and B. A. K. Welihinda, A survey on Hamiltonicity in Cayley graphs and digraphs on different groups, Discrete Mathematics, Algorithms and Applications, Vol. 11, No. 05, 1930002 (2019) https://doi.org/10.1142/S1793830919300029

1.G. H. J. Lanel, T.Sathiyakumar, G.D.D.P Jayaweera, Application of queuing theory to enhance the quality of the performance of a bank, proceedings of the International Conference on Computational Modelling and Simulation (May, 2017)

Research Experience

Dept of Mathematics, Clarkson University *NY, USA*

Advisors: Dr. M Budišić, Dr. S Mondal, Dr.S Sur *2019-2024*

- Dissertation: Modern methods for statistical modeling and inference with applications to biomedical data
- Aim 1: Develop a statistical framework using Persistent homology descriptors to track topological changes over time
- Aim 2: Apply the framework to simulated particle interaction models with known regime transitions
- Aim 3: Validate findings using experimental data from calcium-induced transitions in cell behavior

Dept of Mathematics, University of Sri Jayawardenepura *Sri Lanka*

Advisor: Dr. G H J Lanel *2015-2016*

- B.Sc. Honor's Thesis: A survey on Hamiltonicity in Cayley graphs and digraphs on different groups

Dept of Mathematics, University of Sri Jayawardenepura *Sri Lanka*

Supervisor: Dr. G H J Lanel *November 2015-February2016*

- Internship project: Application of queuing theory to enhance the quality of the performance of a bank

Presentations

10. Oral presentation titled "Hypothesis testing on the parameter vector of a Dirichlet model using relative abundance of microbiome data" at 15th annual Probability and Statistics day, University of Maryland, Baltimore County, USA: (UMBC 2024)

9. Poster titled "COVID-19 in the U.S: Shifting impacts of Socio-demographic factors and air pollution" at Joint Statistical Meeting on Aug 8th, 2023

8. Mini-symposium titled "Identifying transitions between collective motion regimes using statistical significance tests of the time-varying persistent homology" at SIAM Applications for Dynamical Systems: (SIAM DS 2023)

7. Oral presentation titled "Detecting transitions between collective motion regimes using statistical significance tests of the time-varying persistent homology" at 14th annual Probability and Statistics day, University of Maryland, Baltimore County, USA: (UMBC 2023)

6. Oral presentation titled "Identifying transitions between collective motion regimes using statistical significance tests of the time-varying persistent homology" at Research and Projects Showcase, Clarkson University: (RAPS 2022)

5. Oral presentation titled "Statistical inference on time-varying persistence landscape for analyzing coherent behavior of cancerous cells" at Mathematics Conference and Competition of Northern New York (MCCNNY 2022)

4. Poster titled "Statistical inference on time-varying persistence landscape surface for analyzing coherent behavior of cancerous cells" at Applied Algebraic Topology Research Network workshop (AATRN 2021)

3. Oral presentation titled "Use of statistical methods with persistent homology for analyzing collective behavior of cells", SIAM Conference on Applications of Dynamical Systems (DS 2021)

2. Oral and poster presentation titled "Statistical analysis of collective cell behavior of cancerous cells with persistent homology" at Research and Projects Showcase, Clarkson University: (RAPS 2020)

1. Poster presentation titled "Multivariate study to determine the postural correlates of trait mental and physical energy and fatigue" at 3rd Annual Spring Research and Project Showcase, Clarkson University (RAPS 2019)

Teaching Experience

Fall 2025-Spring 2026	**STAT 385/585 Bayesian data analysis, MA 241 Introduction to Data science, MA 120 Introduction to STEM Mathematics, STAT 383 Probability and Statistics** , Visiting Assistant Professor	*Clarkson University*
Fall 2024-Spring 2025	**IA530 Probability and Statistics for Data Analytics, IA640 Information visualization** , Visiting Assistant Professor	*Clarkson University*
Fall 2018 - Spring 2024	**MA 131 Calculus-I, MA 132 Calculus-II, MA 381 Probability, MA 41 Co-calculus, MA 331 Fourier Series and Boundary Value Problems, MA 330 Advanced Engineering Mathematics** , Teaching Assistant	*Clarkson University*
Fall 2023, Spring 2024	**IA 530 Probability & Statistics for Analytics, IA 650 Data Mining** , Guest instructor	*Clarkson University*
Jun 2017-June 2018	**Fluid Dynamics, Linear algebra and vector applications with MAPLE, Basic Mathematics**, Temporary Lecturer	*University of Sri Jayawardenepura*
Jan 2017-May 2017	**Abstract Algebra, Complex Analysis, Boolean Algebra and switching circuits and Classical Mechanics**, Mathematics demomstrator	*University of Sri Jayawardenepura*

Mentoring

Summer-Fall 2025	**Nitul Singha**, Mentored PhD Mathematics student on soil microbiome project	*Clarkson University*
2025 Spring	**Kelsey Sheehe, Kuan-Cheng Ko, Ching-Wen Shih,Eswari Suryadevara, Greeshma Ramesh, Pavan Kumar Chintala, Pramod Varma Chodraju, Akshay Kumar Thugudam**, Project guidance for students from Master of Science in Applied Data Science	*Clarkson University*
2024 Spring	**IA 650 Data mining-class project guidance**, Guest instructor	*Clarkson University*
2022 Summer	**Christian Bernal, Irini Konstantinou**, Graduate student mentor (NSA summer research program)	*Clarkson University*
2020 Summer	**David Moody, Benjamin Bomze (pre first year Honors summer research students)**, Graduate student mentor (RFP Honors summer research)	*Clarkson University*

Presentations by Mentored Students

7. Nitul Singha, Thevasha Sathiyakumar, Shantanu Sur, Sumona Mondal, ”Evaluating the association of soil microbiome composition with soil chemistry and microplastics using multivariate analysis”, (RAPS Oral presentation 2025)

6. Kelsey Sheehe, Naveen Reddy, Thevasha Sathiyakumar, Shantanu Sur, Sumona Mondal, ”Predicting Diabetes Risk: Analysing Health Survey Data for Early Detection (RAPS Oral presentation 2025)

5. Kuan-Cheng Ko, Ching-Wen Shih, Thevasha Sathiyakumar, Naveen Reddy, Shantanu Sur, Sumona Mondal, ”Evaluating the Impact of Demographic and Lifestyle Factors on Respiratory Disease Prevalence: A Retrospective Analysis Using NHANES Data”, (RAPS Poster presentation 2025)

4. Eswari Suryadevara, Greeshma Ramesh, Pavan Kumar Chintala, Pramod Varma Chodraju, Naveen Ramachandra Reddy, Thevasha Sathiyakumar , Sumona Mondal, ”A retrospective study of PCOS and its association with metabolic and cardiovascular risk factors using NHANES data” (RAPS Poster presentation 2025)

3. Christian Bernal, Irini Konstantinou, Thevasha Sathiyakumar, Vijay Kumar, Dinushani Senarathna, Shantanu Sur, James Greene, Sumona Mondal, “Data-centric approach to Rheumatoid Arthritis (RA): Exploring the association with socioeconomic and dietary risk factors” at Research and Projects Showcase, Clarkson University: (RAPS 2022)

2. Dawit Gebremichael, Dinushani Senarathna, Thevasha Sathiyakumar,Prasanth Athavale, Sumona Mondal, Shantanu Sur, ”Ethnic differences in COVID-19 infections and mortality during two waves in the United States: Differential impact of risk factors” at Research and Projects Showcase, Clarkson University: (RAPS 2021)

1. David Moody, Thevasha Sathiyakumar, Marko budisic, Sumona Mondal, Shantanu Sur, ”Network analysis of collective cell behavior of cancer cells” at Research and Projects Showcase, Clarkson University: (RAPS 2020)

Outreach & Professional Development

Served as Poster Judge for the panel “Computer Science, Artificial Intelligence, Computational Modeling, and Data Analytics II”, 2025 Summer RAPS, Clarkson University

Reviewed Nonlinear theory and its applications IEICE article titled ”Estimation of the critical transition probability using quadratic polynomial approximation with skewness-based reject option” (2023)

Participated in the conference and workshop of 15th annual Probability and Statistics day (2024), University of Maryland,Baltimore county, USA

Participated in the 6th Preparing for Careers in Teaching Statistics and Data Science Workshop organized by the Section on Statistics and Data Science Education of the American Statistical Association on Aug 5th 2023 in Toronto, Canada

Participated in the Joint Statistical Meeting held from Aug 5th to 10th 2023 in Toronto, Canada

Participated in the conference and workshop of 14th annual Probability and Statistics day, University of Maryland,Baltimore county (2023), USA

Participated in Clarkson University’s graduate leadership development program conducted by Dimarco consulting group (Feb-Apr 2022)

Participated in workshop on regression: from basics to somewhat advanced level(2022) by Dr. Nabendu Pal

Participated in Applied Algebraic Topology Research Network workshop (2021)

Participated in SIAM Conference on Applications of Dynamical Systems(2021)

Participated to GTA Boot camp for teaching (Undergraduate level STEM courses) conducted by the department of education, Clarkson University (July 2018)

Technically assisted LATex workshop for future scientists by the Physical Science section (E1) of SLAAS (2017)

Technical skills

Sound knowledge on Mathematical and Statistical softwares R, Matlab, Maple, Latex

Professional certificate of graphic design

Previous Student Memberships

Student member in Society for Industrial and Applied Mathematics (SIAM)
American Statistical Association (ASA)

References

Dr. Sumona Mondal
Professor, Department of Mathematics
Co-Director, MS Applied Data Science Program
Clarkson University,
Potsdam, NY 13699-5815, USA.
315/268-6415
smondal@clarkson.edu

Dr. Marko Budišić
Principal Design Engineering Specialist-Framatome
Lynchburg
Virginia
USA.
8054521480
budisicm@vcu.edu

Dr. Shantanu Sur
Associate Professor,
Department of Biology, The Center for Advanced Materials Processing (CAMP)
Clarkson University,
Potsdam, NY 13699-5815, USA.
315/268-4401
ssur@clarkson.edu

Dr. James Greene
Assistant Professor
Department of Mathematics
Clarkson University,
Potsdam, NY 13699-5815, USA.
315/268-7900
jgreene@clarkson.edu