Gonsalge Sureka Almeida | Ph.D.

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A Statistician and educator with a Ph.D. in Applied Mathematics (concentration on Statistics). Extensive experience teaching statistics at undergraduate and graduate levels, with proficiency in data coordination, management, statistical and financial modeling, Time series, and machine learning techniques. Demonstrated R, Python, and SAS expertise and a commitment to using modern pedagogical approaches, including online teaching and real-world data applications. Dedicated to fostering an inclusive academic environment, ensuring effective communication, and enhancing student learning.

Education

Data Engineering – Fellowship Program
The Data Incubator, Jan/ 2023 – June/ 2023.

Ph.D. in Applied Mathematics (Concentration on Statistics)
"Financial Modeling with Lévy Processes and Applying Lévy Subordinator to Current Stock Data"
Case Western Reserve University, Cleveland, Ohio, 2020.

Followed Ph.D. in Mathematics (Concentration on Statistics)
Central Michigan University, Mt Pleasant, Michigan, 2012 – 2014.

Master of Arts in Mathematics: Teaching College Math (Concentration on Statistics)
Central Michigan University, Mt Pleasant, Michigan, 2011.

Bachelor of Science in Computer Science and Statistics
University of Kelaniya, Sri Lanka, 2000.

Technical Engineering College, Sri Lanka
Diploma in Computer Programming, Sri Lanka, 1998-1999.

Technical Proficiencies

Programming Languages: R, Python, Mathematica, C++, Java, SQL, Pine Script.

Tools & Software:
- **Statistical & Data Analysis**: Minitab, SPSS, SAS (with SQL), MATLAB, Tableau, Excel.
- **Development & Data Science Environments**: Anaconda, Jupyter Notebook, VS Code, PyCharm.
- **Version Control & Collaboration**: Git, GitHub, GitLab.

Databases & Data Engineering: PostgreSQL, MySQL, SQLite.

Cloud & DevOps: AWS (S3, EC2, Lambda, RDS), Docker, Kubernetes.

Instructional & Educational Platforms: Blackboard (Ultra), Brightspace, Canvas, Moodle, Pearson MyLabMath, Pearson MyLabStat, Cengage Web, Cengage MindTap, Web-Work, Web Assign.

Other Software: Microsoft Office Suite (Excel, Access, PowerPoint, Outlook), LaTeX.

Career Accomplishments

Risk Analysis and Portfolio Stock Allocation for Algorithmic Trading:

https://github.com/gonsalgealmeida/Portfolio_Stock_Allocation_for_algorithemic_trading

PREDICTIVE ALGORITHMS FOR MARKET RISK, VOLATILITY, AND RETURNS

- Developed and implemented innovative econometric models and data mining techniques.
- Developed algorithms for calculating Value-at-Risk (VaR) and Expected Shortfall (ES) in market risk using a Monte Carlo or a Historical Simulation.
- Performed a time series analysis on stock returns by fitting Levy models and conducting statistical analysis paired with algorithmic simulations.
- Formulated a new method of financial distribution for skewness and high kurtosis data, which further facilitated innovation and algorithm development for new/existing financial models.
- Deep understanding of financial mathematics and statistics, and a passion for investing in the financial markets.

Career Experience

Trine University, Online/Hybrid 08/2024 – Present
Adjunct Professor, Statistics & Quantitative Methods, MBA/MCS/MSIS/MSISY Programs

- Teaching graduate-level courses, integrating financial modeling using Lévy processes, and enhancing the curriculum with advanced statistical methods.

Stark State College, Akron, OH 08/2024 – Present
Adjunct Instructor

- Teaching statistics (MTH124) at Stark State College focuses on practical applications and prepares students for real-world quantitative challenges.

Walsh University, Ohio 01/2025– Present
Adjunct Professor, Calculus 3 & 4

- Teach advanced calculus, emphasizing applying mathematical concepts to data science and statistics.

Brayant &Stratton college, Solon, OH 08/2024 – Present
Adjunct Professor, Business Statistics, Bachelor Program

- Teach Business Statistics focusing on practical applications using NASDAQ Live data and algorithmic trading concepts.

Outlier, Remote 06/2024 – 08/2024
Contributor

- **Project Work**: Completed tasks on projects requiring specific expertise in mathematics, probability, and data science.
- **AI Model Training**: Created and answered questions to optimize AI model performance.
- **Evaluation and Ranking**: Assessed and ranked responses generated by AI systems.
- **Expertise Application**: Utilized subject matter knowledge to evaluate the factuality and relevance of AI model outputs.

DVNproducts, LLC, Twinsburg, OH 11/2020 – Present
Financial Modeler

- **Educational Material Development and Book Writing:** Create comprehensive educational content spanning preschool to high school, focusing on the applicability of mathematics and statistics.
- **Data Handling and Compliance:** Managed data for Amazon and Walmart accounts essential for tax filing and regulatory compliance. Utilized analytical tools such as Excel, SQL, and Python to organize, clean, and analyze data, ensuring accuracy and timeliness in reporting.

Case Western Reserve University, Cleveland, OH 8/2014 – 7/2019
Graduate Student Instructor/Teaching Assistant – Department of Mathematics, Applied Mathematics, and Statistics

- Taught various mathematics courses, including Intermediate Algebra and Calculus, Trigonometry, Fundamental Probability, Statistics, and adapted teaching methods to meet diverse student needs and learning styles.
- Taught and tutored various statistics courses using R, including basic statistics for engineering and science, multivariate statistics, and data mining.
- Developed instructional materials and provided comprehensive support to students, enhancing their understanding and performance in complex mathematical and statistical concepts.

Weatherhead School of Management, Case Western Reserve University, Cleveland, OH 1/2017 – 1/2018
Teaching Assistant

- Evaluated homework and tests and held office hours to ensure students understood course concepts.

Department of Mathematics, Central Michigan University, Mt Pleasant, MI 8/2009 – 7/2014
Graduate Student Instructor/Teaching Assistant

- Taught various mathematics courses, including Intermediate Algebra, Calculus, and Trigonometry, adapting teaching methods to meet diverse student needs and learning styles.
- Created engaging and detailed lesson plans that promoted student involvement and facilitated the adequate comprehension of mathematical principles.
- Provided tutoring for advanced statistics and mathematics courses such as Differential Equations, Elementary Statistics, Statistical Linear Modeling, and Statistical Programming with SAS.

Blue Cube Software Solution, Colorado, USA 8/2011 – 1/2012
SAS Consultancy Training

Statistics Courses (Ph.D., M.A)

Mathematical Statistics I/II, Applied Statistical Methods II (with SAS), Clinical Trials and Survival Analysis (used SPSS/MINITAB), Linear Models (used SAS), Regression Analysis(used R), Time Series Forecasting (used R), Theory of Statistical Inference, Bayesian Theory with Application (used R), Theoretical Statistics and Inference, Computational Inverse Problems, Introduction to Partial Differential Equations, Numerical Methods for Partial Differential Equations, Numerical Solution for Nonlinear System Optimization, Numerical Analysis, Derivatives and Risk Management, Computational Financial Mathematics (independent studies), Stochastic Calculus for Finance I/II(independent studies), Financial Modeling with Jump

Processes(independent studies), Time Series and Markov Chains, Advance Stochastic Modeling, Mathematical Modeling, Fundamentals of Analysis I, Modern Algebra II, Advanced Calculus I/II (Topology), History of Mathematics, Combinatory, Group theory, Ring theory, Fundamental Analysis, Introduction to Real Analysis and Its Applications, Fourier Analysis, Complex Variable Analysis.

Areas of Teaching Expertise

- Mathematics and Statistics: Taught courses ranging from introductory to graduate-level, including Calculus, Data Analytics, Financial Modeling, and Algorithmic Trading.
- Business and Finance: Specialized in applying statistical and mathematical models to real-world financial and trading applications.
- Data Science and Modeling: Integrating machine learning, data automation, and stochastic modeling into coursework to bridge theory and practice.

Teaching Experience

- Adjunct Professor, Trine University, Online/Hybrid, USA, 2024 to present.
    - BA 6933 Statistics & Quantitative Methods for MBA/MCS Programs (Spring 2025)(Eval: 4.8/5.0).
    - BA 6933 Statistics & Quantitative Methods for MBA/MCS Programs (Fall 2024) (Eval: 5.0/5.0)
- Adjunct Instructor, Stark State College, Department of Mathematics, Akron, USA, 2024 to present.
    - MTH 124 Statistics (Fall 2024) (Eval: 4.4/5.0), (Spring 2025), (Eval: 5.0/5.0).
    - MTH 124 Statistics (Fall 2024) (Eval: 4.0/5.0), (Spring 2025), (Eval: 4.7/5.0).
    - MTH 024 Foundation for Statistics, (Fall 2024), (Eval: 4.2/5.0), Spring 2025.
- Adjunct Professor, Walsh University, Canton, USA, Spring 2025 to Present.
    - MATH 310/311 Calculus 3 & 4 (Spring 2025).
- Adjunct Professor, Bryant & Stratton College, Solon, USA, 2024 to Present.
    - MATH 390 statistics (Fall 2024).
- Graduate Student Instructor, Department of Mathematics, Applied Mathematics, and Statistics, Case Western Reserve University, Cleveland, USA, 2014 to 2019.
    - MATH 120 Calculus.
    - MATH 126 Calculus Applications for Life, Managerial and Social Science.
- Graduate Teaching Assistant, Department of Mathematics, Applied Mathematics, and Statistics, Case Western Reserve University, Cleveland, USA, 2014 to 2019.
    - STAT 312 Basic Statistics for Engineering and Science, Fall 2018, Spring 2018.
    - STAT 312 R Basics Statistics for Engineering and Science Using R Programming, Fall 2018.
    - STAT 325/ 425 Data Analysis and Linear Models, Fall 2017.
    - STAT 326/ 426 Multivariate Analysis and Data Mining, Spring 2015, Spring 2016, Spring 2019.
    - STAT 345/445 Theoretical Statistics I, Fall 2017.
    - STAT 333 Uncertainty in Engineering and Science, Summer 2019.
- Graduate Teaching Assistant, Weatherhead School of Management, Case Western Reserve University, Cleveland, USA, Spring 2017 to Spring 2018.
    - MSOR 402, Stochastic Models with Applications.
- Graduate Student Instructor, Department of Mathematics, Central Michigan University, Mt. Pleasant, USA, 2009 to 2014.

  - MTH 105, Intermediate Algebra, Spring 2010, Spring 2011, Spring 2013, Spring 2014.
  - MTH 109, Trigonometry, Fall 2010, Fall 2011, Fall 2013.

- Teaching Assistant, Department of Mathematics, Central Michigan University, Mt. Pleasant, USA, 2009 to 2014.
  - STAT 282/382 Elementary Statistics.
  - STAT 580 Statistical Linear Modeling.
  - STAT 575, Statistical Programming for Data Management and Analysis with SAS.

- Preschool Teacher, Prime Time Preschool, California, USA, Oct 2007 to Aug 2008.
  - Completed Early Childhood Education Certifications while teaching at the Preschool.
  - North Orange County Continuing education, Anaheim, CA.
    - Early Childhood Development
    - Principles I /Principles II
    - Family Relationships
    - Child Safety and Health

- Part time - Lecturer, Chartered Institute, Sri Lanka, 2004 to 2005.
  - Statistics for AAT and Chartered Accountancy Program.

- Teaching Assistant, University of Kelaniya, Department of Statistics and Computer Science, Sri Lanka, Jan 2002 to Dec 2002.

- Teaching Assistant, University of Kelaniya, Department of Mathematics, Sri Lanka, Feb 2000 to Dec 2001.

Research Interest

- Financial modeling based on Lévy processes, particularly in the context of algorithmic trading and stochastic processes.
- Lévy processes to financial time series, integrate machine learning, data analytics, and data science to enhance predictive modeling and decision-making in financial markets.
- Lévy processes for engineering, material science, and physics applications, particularly in stochastic modeling of dynamic systems.
- Time Series, Data Science.

Ph.D. Thesis and Current Research

- **Ph.D. Thesis:** *Financial Modeling with Lévy Processes and Applying Lévy Subordinator to Current Stock Data* (June 2019).

- **Current Research:**

  - GARCH with Tempered Stable Jumps and Its Application to Log Returns of Stocks.

  - Apply Lévy-based stochastic processes to financial modeling, exploring new distributional approaches for data modeling using Lévy distributions.

  - Developing a series of books that integrate financial modeling and trading education, with a focus on swing, gap, and options trading.

(Advisor: Dr. Wojbor A. Woyczynski, Department of Mathematics, Applied Mathematics, and Statistics, Case Western Reserve University.)

Plan B Papers (M.A. Research) and Additional Research

- *Analyzing Data with Long-tail Positively Skewed Distribution: The Inverse Hyperbolic Sine Squared Exponential Family Applied to Real-Life Data* – A new distributional approach to modeling skewed data.
- *Analyzing Data with the Sinh Lognormal Distribution to Fit Cluster Data with High-Frequency Outliers* – a new distributional model for clustered data.
- *Analyzing Data with Odd-Pareto Distribution and Applying It to Loss Payments Data* – Conducted during Ph.D. studies at Central Michigan University (2012–2014).

(Advisor: Dr. Kahadawala Cooray, Department of Mathematics, Central Michigan University.)

Professional Associations and Honoraries

- American Statistical Association (2017-present)
- American Mathematical Society (2009-Present), Society for Industrial and Applied Mathematics.
- Graduate Student of Art and Science at Case Western Reserve University (Treasure: 2018/2019).
- Graduate Council of Case Western Reserve University (Representative: 2017/2018).
- Faculty Association, Stark State College (Committee Member: Branding and Benefits: 2024/2025).
- Member of DataTalks.Club (07/2024 - present).

Professional Development

- Gonsalge Sureka Almeida, Logistic model to find the most significant risk factors for the presence/absence of high blood pressure, Student Research & Creative Endeavors Exhibition (SRCEE), Central Michigan University, 2013.
- International Conference on Statistical Distributions and Applications (ICOSDA), Central Michigan University, 2013.
- Financial Modeling with Levy Process and Statistical Issues, Stochastic Group Seminars in Case Western Reserve University, December 2016.
- Tempered Stable Distribution and Application to the Finance, Stochastic Group Seminars in Case Western Reserve University, March 2017.
- Summer NAMM (2017), Nashville, Tennessee.
- Tempered Stable Subordination Process and Application to the Finance with Simulation, Stochastic Group Seminars in Case Western Reserve University, October 2017.
- Financial Modeling with Tempered Stable Subordinator and Parameter Estimation using Least Square Estimators, Stochastic Group Seminar, Case Western Reserve University, February 2018.
- NAMM, Irvine, California, 2018.
- Financial Modeling with Subordinated Brownian Motion with Application to S&P500 Stock Data, CWRU_SCREE, 2018.
- Data Science Workflows Using R and Spark, Symposium on Data Science, Reston, Virginia, May 2018.
- NAMM, Irvine, California, 2019.
- SMB Daily Trading Training Program, 2020.
- T3Live Trading 101: Foundation Course, 2020.
- T3Live Strategic Swing Trader Course, 2020.
- T3Live Trading the Pristine Method Advance Gap Strategies (1-G), 2021.

- T3Live Option trading course, 2021.
- T3Live Strategic Day Trader VTF, Jan 2020 – Dec 2021.
- T3Live Swing Trader, Jan 2020 – Dec 2020.
- TradersEXPO, New York, March 7-9, 2020.
- Money Show(virtual event), Chicago, June 10-12, 2020.
- MoneyShow/ TradersEXPO, Las Vegas Virtual Expo, August 18-20, 2020.
- MoneyShow/ TradersEXPO Virtual Event- Money Masters Classes, November 17-18, 2020.
- MoneyShow/ Virtual Expo, January 12-14, 2021
- MoneyShow/ TradersExpo, February 24-26, 2022.
- MoneyShow Virtual Expo, December 13-14, 2022.
- MoneyShow Virtual Expo, June 27-29, 2023.
- Stark State College, Blackboard Basics, August 2024.
- Stark State College, Online teaching Certificate, September-October 2024.
- Trine University, Online Faculty Certification Course (OFCC), September 2024.
- Trine University, Moodle faculty Certificate Course (MFCC), September 2024.
- Micro–Credentialing: Embracing the AI Revolution - A Strategic Boot Camp for Actionable Integration and Leadership, Walsh University.
- Micro-Credentialing: Innovative AI: Practical Teaching Strategies with ChatGPT, Walsh University.
- Stark State College, Brightspace, Basic Training, 2025.
- Trine University, Online Developers Certificate Course (ODCC), April 2025.

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Status of Citizenship: U.S. Citizen