Statistical Modeling and Data Analysis

Research interests

- Time Series Analysis
  - Theoretical development of time series models
  - Empirical modeling and forecasting of time series

- Reliability and Survival Analysis
  - Modeling life-spans of manufactured components and living organisms
  - Design and analysis of life tests & degradation studies

- Statistical Modeling of Biological Phenomena
  - Statistical modeling and simulation of Drosophila activity & sleep
  - Mathematical modeling & simulation of sleep-wake patterns

- Statistical Applications in Engineering & the Sciences
  - Design of experiments [*optimal designs, factorial & mixture experiments*]
  - Environmental statistics [*modeling of ground water pollution]*
  - Transportation statistics [*modeling accident rates, traffic counts*]
  - Modeling of behavioral, engineering, and socio-economic data

- Data Science and High-dimensional Data Analysis
  - Functional data analysis
  - Classification and clustering methods

Clockwise from top-left: Prediction intervals for S&P 500 index; Functional principals components of 24-hour sleep propensity cycle of Drosophila; Volatility modeling of financial sector returns; Modeling glass dissolution rate (DR).

Daily Returns for the S&P 500 Financial Sector
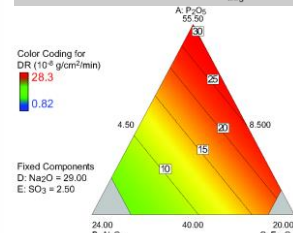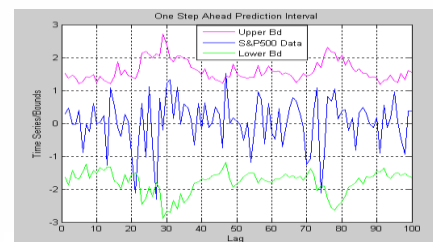
Contact Information

V.A. Samaranayake

Curators' Distinguished Teaching Professor
Associate Chair & Director of Graduate Studies
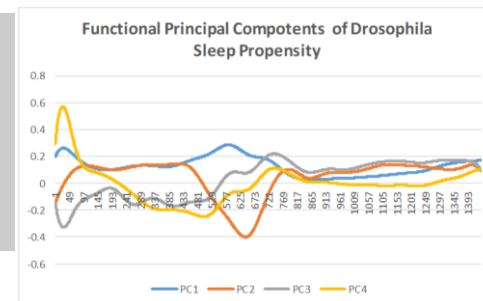Department of Mathematics & Statistics
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Funding

- NIH: Mathematical Modeling of Model Organisms
- DOE: Property/Composition Model for Phosphate Glasses
  MoDHE: Science Education and Quantitative Literacy
- Other funding sources: NSF, LWI, IRP

Keywords

- Time series analysis, biostatistics, data analysis, reliability, design of experiments, K-12 outreach.

Recognitions/Significant achievements

- Elected Fellow of the American Statistical Association 2016
- Governor's Award for Excellence in Education 2014
- Curators' Distinguished Teaching Professorship 2013
- Conducted grant funded K-12 teacher professional development projects every year from 1996 through 2016
- Over 35 years of collaborative research/consulting experience