SHAOSHU LI

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Education

Aug, 2015-Dec, 2021 — **Department of Economics, Cornell University** — Ithaca, USA
PHD in Economics

Aug, 2013-Dec, 2014 — **Department of Statistical Science, Cornell University** — Ithaca, USA
MPS in Applied Statistics

Sep, 2009-Jul, 2013 — **School of Management, Xiamen University** — Xiamen, China
Double Major in Accounting (ACCA track) and Mathematics & Applied Mathematics

Research

Dec, 2019 – June, 2021 — **A New Approach to Self-Normalization** — Ithaca, USA

- Propose a new estimator to avoid long-run variance estimation in hypothesis testing about the population mean of a time series process, which can completely get rid of nuisance parameter estimations.
- By taking advantage of the properties of order statistics, the new estimator can better take account of the extreme value property of time series data especially under heavy tail distributions.
- Compared with related tests, the new test statistics has salient asymptotic local power against broad class of local alternatives.
- Empirical analysis depicts the new estimator has better size performance under heavy tail IID stable distributions and the finite sample power is pronounced under most cases. In addition, incorporating MBB methods can also improve the size performance of the new estimator under several AR(1) situations.
- Real world analysis for S&P 500 percentage return series and macroeconomic series also depicts the new estimator has outstanding power performance especially when data depicts larger volatility and more observations are available.

Sep, 2018 – Sep, 2019 — **Commercial Bank Operation Analysis using Multi-task Gaussian Process Model** — Ithaca, USA

- Apply multi-task Gaussian process model (MTGP) in Bayesian Machine Learning (BML) to analyze commercial banks' operations especially on profitability and efficiency.
- By learning these tasks jointly, one can improve the overall accuracy of estimations if task variables are correlated.
- As some simple case, we use some typical co[*†]mmercial bank indicators in Compustat to predict several task variables related to banks' profitability and efficiency.
- Perform some analysis for large banks and small banks separately.
- Using the negative marginal likelihood to compare model fit. The simulation results show by decomposing asset class into detail classifications in the MTGP model, we can improve the model fit to certain degree.

June, 2017– June, 2018 — **A General Liquidity Risk Model** — Ithaca, USA

- Construct a general liquidity risk model that includes both convex liquidity risk part and non-convex liquidity risk part. Convex liquidity risk part is modeled as liquidity adjusted amount for stock purchasing times stock price. Non-convex liquidity risk part is modeled as a part of fix liquidity cost minus a part varies with convex liquidity risk part.
- Establish an equilibrium asset price using representative agent approach. Systematic risk return relationship can be characterized using state price density.
- Solve for individual trader's optimal trading strategy. Under representative agent approach, the representative trader's utility can be considered as a weighted sum of individual traders' utilities in an asset market. Solve for representative trader's optimal trading strategy in an asset market with liquidity risk. Find the pricing conditions where no trade is an optimal strategy for representative trader.
- Define representative trader asset market equilibrium with liquidity risk. Establish the pricing conditions of the existence of representative trader asset market equilibrium. Characterize the asset market equilibrium with liquidity risk.

[*] September, 2021

May, 2014– June, 2015	**The Applications of Support Vector Machines in Economics** Ithaca, USA • Dug up the research history and recent articles of SMV, reviewed its common usage in various areas • Explained how Support Vector machines could have very large VC dimension by computing the VC dimension for homogeneous polynomial and Gaussian radial basis function kernels • Gave examples and proofs about SMV's application in macroeconomic researches with high dimensional data, analyzed merits and demerits of research methodology
Jan, 2014- May, 2014	**Lift Truck Industry Correlation to Census Data** Ithaca, USA *Team member, Project report for MPS in Applied Statistic program, Cornell University* • Correlated given information by transferring original data into non-negative parameter series • Developed and tested negative binomial models and linear regression models based on RMSE statistic • Applied cross validation on models to obtain prediction of trucks sales by ITA to each NAICS industry with Raymond data and checked model assumptions by examining model diagnostic plots • Used factor regression to prove the shift of ITA sales from Class 4 trucks to Class 1 trucks and from Class 1 trucks to Class 3 trucks
Jan, 2012- Mar, 2012	**Ordinal Cluster Dummy Variable Method with its Application** Xiamen, China *Research Assistant, Data Mining Research Center, Xiamen University* • Applied Monte Carlo simulation to compare the Ordinal Cluster Dummy Variable Method with Chow test and Recursive Least Squares (RELS), helped to discover the priorities of the Method • Assisted in analyzing the Beta stationary of Chinese stock market with Chow test, RELS and Ordinal Cluster Dummy Variable Method, helped to interpret the test results • Self-learned Chow test and RELS by reading books and references.
Feb, 2011- May, 2011	**CPI Verification of Short-term Volatility of Inflation in China and Time-share Adjustment of Long-term Balance** Xiamen, China *Research Assistant, Data Mining Research Center, Xiamen University* • Conducted CPI indicators' adjustment with R programming and X-12-ARIMA model • Helped with stationary test of the time series of indicators with Augment Dickey-Fulle (ADF), provided support for model establishment and hypothesis testing
Sep, 2010- Feb, 2011	**The Research on Evaluation System of Statistical Data Quality** Xiamen, China • Compared and contrasted statistic data quality requirements in International Monetary Fund's Data Quality Assessment framework to financial reporting data quality requirements in the Financial Accounting Standards Board's framework • Summarized real conditions corresponding to each data quality items, majorly interpreted statistical data from the perspective of users' demand and the statistical data producing process
Publication	
May, 2013	WANG Heng-heng[1], LI bin[1], LUAN Xiao-feng[1], GU Cai-wei[1], LI Shao-shu[2], ***Investigations on population dynamics of Fejervarya multistriata in Plantations in Fujian*****,** Journal of Beijing Forestry University • Applied cluster analysis to classify rice frog based on snout-vent length and body weight • Applied 1-Sample K-S Test and one-way ANOVA to analyze and compare the variation of the length (L), weight (W), relative-fatness (K) and weight/length (Kwl) of Fejervarya limnocharis • Analyzed the variation of L, W, K and Kwl in different month, different type/age of plantations
May, 2013	Jia Dan-ping[1], Hu Ming-xing[1], Li Shao-shu[2], ***On the Framework designing of statistical indicators of Forest insurance*****,** Journal of Northwest Forestry University. • Designed a framework of statistical indicators from the perspective of government, insurance companies and forestry producers, included basic indicator and calculating indicator
Jan, 2013	ZHANG Ying[1],LI Hui[1],LI Shaoshu[2], ***Comparative Analysis of Forest Conservation and Sustainable Forest Management in China and Germany***, Forestry Economics
Teaching Experience Aug, 2016- June, 2021	**Department of Economics, Cornell University** Ithaca, USA Teaching Assistant for Introductory Microeconomics, Introductory Macroeconomics and Financial Economics.
Activity Jul, 2008- Sep, 2008	**Food and Agriculture Organization of the United Nations** Wenchuan, China • Went to areas severely damaged by the earthquake as FAO volunteer to give supports and provide necessary foods and materials to refugees, broadcasted knowledge of farmland rebuild
Skills & Interests	• Languages: Native in Chinese, Fluent in English • Programming: SAS (SAS advanced certification holder), R, Matlab, Stata, C++, Python, SPSS, VB, etc. • Interests: Reading, Outdoor sports, and playing the flute