Toktam Valizadeh

Assistant Professor in Analytics
Dep of Information System & Analytics
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Education

2021-present **PhD in Statistics**, School of Mathematical and Statistical Sciences, Southern Illinois University, Carbondale, Illinois, USA.

- GPA: 4
- Dissertation Title: Dimension Reduction for High-Dimensional Multivariate Heteroskedastic Time Series via Envelope Methods
- Advisor: Dr. S. Yaser Samadi

2010–2012 **Master of Science in Mathematical Statistics**, Shahrood University of Technology, Semnan, Iran.

- GPA: 18.68 (out of 20)
- Thesis Title: Adaptive and Non-Adaptive Splines in Semi-Parametric Regression Models
- Advisor: Dr. Mohammad Arashi

2004–2008 **Bachelor of Science in Statistics**, Birjand University, South Khorasan, Iran.

Research Interests

Multivariate Time Series, Dimension Reduction, GARCH and MGARCH Models, Shrinkage and Regularization Methods, Semiparametric Regression, Machine Learning

Professional Experience

2025-Present **Assistant Professor**, Texas State University, TX, USA.
2021- 2025 **Research Assistant**, Southern Illinois University Carbondale (SIUC), IL, USA.
2021- 2023 **Instructor and Teaching Assistant**, SIUC, IL, USA.
2020- 2021 **Statistical Researcher**, MahTaab Group Company, Tehran, Iran.
2017- 2020 **Statistical Researcher**, Neuro Imaging & Analysis Group, University of Tehran, Iran.
2015- 2020 **Research Assistant**, Amir Kabir University of Technology, Tehran, Iran.
2013- 2015 **Lecturer (Part time)**, Payame Noor University, Razavi Khrorasan, Iran.
2013- 2015 **Lecturer (Part time)**, Atrak University, Razavi Khrorasan, Iran.
2011- 2012 **Teaching Assistant**, Shahrood University of Technology, Semnan, Iran.

Honor and Award

2024- 2025 **Doctoral Fellowship**, SIUC, Fall 2024 - Summer 2025, Southern Illinois University, Funded by the Graduate School of Southern Illinois University, Total funding value: $\$45,217$.

2024- 2025 **Dissertation Research Award**, Fall 2024 - Spring 2025, Southern Illinois University, Funded by the Graduate School of Southern Illinois University, (Declined in favor of the Doctoral Fellowship).

2023- 2024 **Doctoral Fellowship**, SIUC, Fall 2023 - Summer 2024, Southern Illinois University, Funded by the Graduate School of Southern Illinois University, Total funding value: $\$45,217$.

2020- 2021 **Research Grant**, Arian MahTaab Gostar Company. For modeling inflation and foreign exchange (FX) risk, and their instantaneous correlation in the Iranian market, Tehran, Iran. Total grant value: $2,000.

2010- 2012 **Top Rank**, Master's Program, Shahrood University of Technology.

Publications

Puplished papers

1. Yahyaei, B., Asadollahfardi, G., Mahmoudpuor, E., Mahmod Por, E., Samadi, S. Y., **Valizadeh, T.**, and Mahdavi Cici, Y. (2023). Experimental and statistical study of mechanical and durability properties of self-compacting concrete using seawater for making and curing, *Environmental Engineering and Management Journal*, 22 (11), 1861-1878.
2. **Valizadeh, T.**, Mohammadi, F., and Rezakhah, S. (2021). On time-varying amplitude HGARCH model, *International Journal of Finance and Economics*, 26 (2), 2538-2547.
3. Sharbati, R., Ramazi, H., Khoshnoudian, F., **Valizadeh, T.**, Koopialipoor, M., and Jahed Armaghani, D. (2020). The smooth transition GARCH model for simulation of highly nonstationary earthquake ground motions, *Engineering with Computers*, 38, 1529–1541.
4. **Valizadeh, T.**, and Rezakhah, S. (2018). Flexible Cholesky GARCH model with time-dependent coefficients. arXiv preprint arXiv:1805.11268
5. Arashi, M., Kibria, B. M. G., and **Valizadeh, T.** (2017). On ridge parameter estimators under stochastic subspace hypothesis, *Journal of Statistical Computation and Simulation*, 87 (5), 966-983.
6. Arashi, M., and **Valizadeh, T.** (2015). Performance of Kibria's methods in partial linear ridge regression model, *Statistical Papers*, 56, 231- 246.
7. Hajali, V., Sheibani, V., Ghazvini, H., Gadiri, T., **Valizadeh, T.**, Saadati, H., and Shabani, M. (2015). Effect castration on the susceptibility of male rates to the sleep deprivation-induced impairment of behavioral and synaptic plasticity, *Neurobiology of Learning and Memory*, 110, 140-141.

Book chapter

1. Arashi, M., and **Valizadeh, T.** (2020). Misspecified restriction in partial linear models. In: Xu J., Ahmed S., Cooke F., Duca G. (eds) Proceedings of the Thirteenth International Conference on Management Science and Engineering Management. ICMSEM2019 2019. Advances in Intelligent Systems and Computing, vol 1001. Springer, Cham, Switzerland.

Conference paper

1. **Valizadeh, T.**, and Arashi, M. (2013). Different ridge parameter estimators in partial linear models, 5-th Iranian Conference Applied Mathematics, Hamedan, Iran.

Invited Talks

1. Fall 2024, *Dimension reduction in VAR-heteroskedasticity models*, 18th international joint conference CFE-CMStatistics, King College London, UK.
2. Spring 2023, *Efficient dynamic functional connectivity estimation via dimension reduction in VAR-MGARCH models: application in health and brain disorders classification*, AMS graduate students: Carbondale, IL, USA.
3. Fall 2022, *Dimension reduction in VAR-MGARCH models*, Langenhop lecture & Southern Illinois University (SIU) probability and statistics conference, Carbondale, IL, USA.

4. Fall 2020, *Univariate and multivariate GARCH models*, Dimension reduction in time Series working group V (Virtual), Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle Park, North Carolina, USA.

Contributed Presentations

1. **Valizadeh, T.**, and Samadi, S. Y. (2024). Heteroskedastic autoregressive modeling for high-dimensional correlated Data, 2024 student research & creative activities forum, Southern Illinois University, Carbondale, USA.
2. **Valizadeh, T.**, and Samadi, S. Y. (2023). Efficient dynamic functional connectivity estimation via dimension reduction in VAR-MGARCH models: application in health and brain disorders classification, 2023 student research & creative activities forum, Southern Illinois University, Carbondale, USA.
3. **Valizadeh, T.**, and Rezakhah, S. (2018). Estimate dynamic FC for fMRI data with DCC-GARCH and Cholesky-GARCH, 14-th Iranian Statistical Conference, Shahrood, Iran.
4. Arashi, M., and **Valizadeh, T.** (2016). A new estimator for the biasing parameter in restricted partial linear model, 13-th Iranian Statistical Conference, Kerman, Iran.
5. **Valizadeh, T.**, and Arashi, M. (2013). Different ridge parameter estimators in partial linear models, 5-th Iranian Conference Applied Mathematics, Hamedan, Iran.
6. **Valizadeh, T.**, Shahsavani, D., and Arashi, M. (2012). An application of multivariate adaptive regression splines in housing prices, 11-th Iranian Statistical Conference, Tehran, Iran.

Teaching Experiences

Fall 2022, Spring 2023, Spring 2025 — **Instructor**, School of Mathematical and Statistical Sciences, Southern Illinois University, Carbondale, Illinois, USA.

- Basics of Data science (Spring 2025)
- Intro to Contemporary Math, in person (Fall 2022) and online (Spring 2023)

2021- 2023 — **Teaching Assistant**, School of Mathematical and Statistical Sciences, Southern Illinois University, Carbondale, Illinois, USA.

- Basics of Data science, Intro to Statistics, Mathematical Statistics in Engineering and Science, Time series, Statistical Computing and Learning, Applied Statistics, Applied regression, College Algebra, Intro to Contemporary Math, Calculus I and III, R software

2012- 2015 — **Lecturer**, Different Schools in IRAN.

- Time Series Analysis, Statistics and Probability for Engineering, Statistical Methods, Statistics and Applied Probability, Statistics and Its Applications in Management, Regression Analysis, Discrete and Continuous Multivariate Methods, Nonparametric Methods, Statistical Calculations with Computer, SAS and SPLUS software

2010- 2012 — **Teaching Assistant**, Mathematics and Statistics School, Shahrood University of Technology.

- Statistical learning, Statistics and Its Applications in Management, R software

2021-2023 — **Other duties**

- Tutoring undergraduate students, conducting proactive intervention sessions, and maintaining online grade book via D2L according to the guidelines of Center for Teaching Excellence at SIUC

Research Group Experiences

2021- present **Research Group**, School of Mathematical and Statistical Sciences, SIUC.
Conducting presentations and working on group projects under the supervision of Dr. S. Yaser Samadi on dimension reduction methods in multivariate time series models.

Spring 2021 **Symbolic Data Analysis Working Group IV**, Statistical and Applied Mathematical Sciences Institute (SAMSI).
Learned a new topic and new research ideas while participating in talks and presentations.

Fall 2020 **Dimension Reduction in Time Series Working Group V**, Statistical and Applied Mathematical Sciences Institute (SAMSI).
Conducted presentations and worked on group projects.

2017-2020 **Neuro Imaging & Analysis Group**, University of Tehran, Iran.
We worked on analysing of fMRI images.

Supervision and Mentoring

2024-present Koralegedara, H., Partial least square in multivariate times series, SIUC, Master student in Statistics at SIUC.

2023-present Liyanaarachchi, D., Dimension reduction in nonlinear multivarite time series models via reduced rank, SIUC, Master student in Statistics at SIUC.

2014 Shirazi, A., and Faramarz, H., Logistic regression and discriminant analysis, Payame Noor University of Quchan, Undergrad student.

2014 Dolati, F., Methods and procedures to help a scientific research statistics, Payame Noor University of Quchan, Undergrad student.

2013 Asadparvar, H., and Telgerdi, S., Scatterplot smoothers, Payame Noor University of Quchan, Undergrad student.

2013 Afrasiyabi, A., Applications of semiparametric regression, Payame Noor University of Quchan, Undergrad student.

Workshops

Spring 2021 Participated in symbolic data analysis working group IV workshop, Statistical and Applied Mathematical Sciences Institute (SAMSI), USA.

2018 Participated in summer school on data science (3 days), Institute for Research in Fundamental Science (IPM), Tehran, Iran.

2017 Participated in functional data analysis and dimension reduction workshop, Tarbiat Modares University, Tehran, Iran.

2016 Participated in clustering and classification workshop, Amirkabir University of Technology, Tehran, Iran.

2011 Participated in introduction to data mining workshop, Shahrood University of Technology, Semnan, Iran.

Leadership and Communication Skills

2022 – 2023 **Treasure**, Iranian Student Association (RSO), Southern Illinois University Carbondale, IL, USA.

2022 **Helper to Executive Team**, Langenhop lecture & Southern Illinois University (SIU) probability and statistics conference, Carbondale, IL, USA.

2017 – 2018 **Sport Manager of all Dormitories**, AmirKabir University of Technology, Tehran, Iran.

2018 **Member of the Executive Team**, The 3rd Series of Workshops on Advanced Statistical Methods in Cognitive Sciences, Neuro Imaging & Analysis Group, Tehran University, Iran.

2011-2012 **Manager of the Dormitory**, Shahrood University of Technology, Semnan, Iran.

Professional & Academic Membership

Member, American Mathematical Society.

Member, American Statistical Association.

Computer Skills

Coding R, Matlab, Python, SAS, Minitab, SPLUS

Software LaTeX, OxMetrics, MS Office, Bigdawg

References

PhD advisor **Dr. S. Yaser Samadi**, Associate Professor of Statistics, School of Mathematical and Statistical Sciences, Southern Illinois University, Carbondale, IL, USA. Email: `ysamadi@siu.edu`

cmte.member **Dr. David Olive**, Professor of Statistics, School of Mathematical and Statistical Sciences, Southern Illinois University, Carbondale, IL, USA. Email: `dolive@siu.edu`

cmte.member **Dr. Jianhong Xu**, Professor of Mathematics, School of Mathematical and Statistical Sciences, Southern Illinois University, Carbondale, IL, USA. Email: `jhxu@siu.edu`

MS advisor **Dr. Mohammad Arashi**, Professor of Statistics, School of Mathematical and Statistical Sciences, Ferdowsi University of Mashhad, Iran. Email: `m_arashi_stat@yahoo.com`

Teaching evaluator **Oneal Summers**, Lecturer, School of Mathematical and Statistical Sciences, Southern Illinois University, Carbondale, IL, USA. Email: `onealsummers@siu.edu`