

Vahed Maroufy

CONTACT INFORMATION

Department of Biostatistics
School of Public Health
University of Texas Health
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RESEARCH INTERESTS

Data Mining and Big Data Analysis, Analyses of Biomedical Data and Electronic Health Records (EHR), Dynamic Prediction, Survival Analysis and Frailty Models, Deep Learning and Neural Network Models, Gene Expression Analysis, Geometry of Statistical Models, Computational Statistics and Optimization, Mixture Models and Latent Analysis, Bayesian Inference and Robustness, Log-linear and Graphical Models.

CURRENT APPOINTMENT

Assistant Professor, [Biostatistics and Data Science](#),
School of Public Health, University of Texas Health

January 2019 – Present

EDUCATION

Post-Doctoral Fellow, [Biostatistics and Data Science](#),

August 2016 – January 2019

- Research Area: *Data Mining and Dynamic Prediction in Electronic Health Records (EHR); Statistical Analysis of Gene Expression and RNA Data, With Focus on Cancer Cell-lines*
- Advisor: Prof. Hulin Wu

Ph.D., [University of Waterloo](#), Waterloo, Ontario Canada
Statistics, June 2016

- Thesis Topic: *Applications of Geometry in Optimization and Statistical Estimation*
- Supervisor: Prof. Paul Marriott

M.Sc., [Allame Tabatabaei University](#), Tehran, Iran
Statistics, February 2006

- Thesis Topic: *Bayesian Sample Size Calculation in Clinical Trials*

B.Sc., [University of Tehran](#), Tehran, Iran
Statistics, September 2003

JOURNAL PUBLICATIONS

- Balogh, J., ..., Williams, G. W. and **Maroufy, V.** (2024) Effect of frailty as measured by functional impairment on long-term outcomes in liver transplantation in the United States *World Journal of Transplantation* (Accepted)
- Lai, H., ..., Williams, G. W. and **Maroufy, V.** (2024) Racial and Socioeconomic Disparities in Traumatic Brain Injury Outcomes: Insights from a Nationwide Analysis. *Neurosurgery* (accepted)

- Tsai, J., Li, Y., & **Maroufy, V.** (2024). Prevalence of four types of social support and their relation to mental health among low-income US veterans: implications for community health. *Community mental health journal*, 1-11.
- Testa, A., Mungia, R., Neumann, A. C., Samper-Ternent, R., Mijares, L., **Maroufy, V.**, ... & Jackson, D. B. (2024). Prior incarceration length and edentulism among formerly incarcerated older adults in the United States. *The Journal of the American Dental Association*.
- Testa, A., Jackson, D. B., Gutierrez, C., Fahmy, C., **Maroufy, V.**, Samper-Ternent, R., & Neumann, A. C. (2024). History of Incarceration and Dental Care Use Among Older Adults in the United States. *American Journal of Preventive Medicine*.
<https://doi.org/10.1016/j.amepre.2024.06.023>
- Abe, S., LI, Y., **Maroufy, V.**, et. al, 2024. AB1473 Health-Related Qaulity of Life in Antenatal Women Rheumatic Disease: Insight Using PROMIS Instruments From the COVAD 2 Dataset. *Annals of the Rheumatic Diseases* 83 (1).
- Backley, S., Bergh, E. P., Garnett, J., Li, R., **Maroufy, V.**, Jain, R., ... & Papanna, R. (2024). Fetal cardiovascular changes during open and fetoscopic in-utero spina bifida closure. *Ultrasound in Obstetrics & Gynecology*, 64(2), 193-202.
- Agarwal, N. D., Bartal, ,... **Maroufy V.**, ... & Papanna, R. (2024). 838 Transvaginal/Transvesical Ultrasound (TVUS) to Diagnose Placenta Accreta Spectrum (PAS), its Severity & to Predict Blood Loss. *American Journal of Obstetrics & Gynecology*, 230(1), S444-S445.
- Park, J. M. ..., **Maroufy, V.** and Williams, G. W. Influences of vaccination and public health strategies on COVID-19 dynamics in the United States: Evaluating policy impacts, behavioral responses, and variant proliferation, *International Journal of One Health*, 9(2): 172-180
- Yoshida, A., Li, Y., **Maroufy, V.**, ..., Gupta, L., Impaired health-related quality of life in patients with idiopathic inflammatory myopathies: A cross-sectional analysis from an international e-survey; *Rheumatology Advances in Practice* 8, (2).
- Williams, G., Mubashir, T., ... , and **Maroufy, V.** (2023) Recent COVID-19 Infection is Associated with Increased Mortality in the Ambulatory Surgery Population *Journal of Clinical Anesthesia* p.111182
- Boren, S. B., Savitz, S. I.,..., **Maroufy, V.**, Li, Y.,..., Haque, M. E., (2023) Longitudinal Morphometric Changes in the Corticospinal Tract Shape After Hemorrhagic Stroke *Translational Stroke Research* (Accepted)
- H., Lai, H., Mubashir, T., Shiwalkar, N. Ahmad, H., Balogh, J., Williams, G., Bouer, C. and **Maroufy, V.** (2022) Association of Pre-Admission Opioid Abuse and/or Dependence on Major Complications in Traumatic Brain Injury (TBI) Patients *Journal of Clinical Anesthesia*, 79, 110719.
- Asghari, A., Wall, K., Gill, M., Del Vecchio, N., Allahbakhsh, F., Wu, J., ... and **Maroufy, V.** (2022). A novel group of genes that cause endocrine resistance in breast cancer identified by dynamic gene expression analysis. *Oncotarget*, 13, 600.
- Mubashir, T., Ahmad, H., Lai, H., Chaudhry, R. **Maroufy, V.**, Balogh, J., Digbeu, B., Hwong, R., Chung, C., Williams, G., (2022) Effect of Obstructive Sleep Apnea on Outcomes after Traumatic Brain Injury: A Retrospective Cohort Analysis *Journal of Neurocritical Care* 1-8.

- Mubashir, T., Lai, H., Oduguwa, E., Chaudhry, R., Balogh, J, Williams, G.W., and **Maroufy, V.** (2022) Effect of tracheostomy timing on outcomes in patients with traumatic brain injury: *Baylor University Medical Center Proceedings* 35 (5), 621-628.
- Afhami, B., Rezapour, M., Madadi, M. and **Maroufy, V.**, (2022). On Sensitivity for Portfolio Optimisation Based on a High-dimensional Jump-diffusion Merton Model. *Statistics, Optimization & Information Computing*, 10(3), pp.983-997.
- Afhami, B., Rezapour, M., Madadi, M., **Maroufy, V.** (2021). Dynamic investment portfolio optimization using a multivariate Merton model with correlated jump risk. *International Journal of Nonlinear Analysis and Applications*, 12(2), 1331-1341. doi: 10.22075/ijnaa.2021.23421.2538
- Wijarnpreecha, K., Li, F., Xiang, Y., Xu, X., Zhu, C., **Maroufy, V.**, ... and Tao, C. (2021). Nonselective beta-blockers are associated with a lower risk of hepatocellular carcinoma among cirrhotic patients in the United States. *Alimentary Pharmacology Therapeutics*, 54(4), 481-492.
- Yu, D., Williams, G. W., Aguilar, D., Yamal, J. M., **Maroufy, V.**, Wang, X., ... Wu, H. (2020). Machine learning prediction of the adverse outcome for nontraumatic subarachnoid hemorrhage patients. *Annals of clinical and translational neurology*, 7(11), 2178-2185.
- Mubashir T., Arif AA., Ernest E., **Maroufy V.**, Williams GW., et al. (2021) Early versus Late Tracheostomy in Patients with Acute Traumatic Spinal Cord Injury: A Systematic Review and Meta-analysis, *Anesthesia & Analgesia*; 132(2), 384-394.
- Yu D., Williams GW., Aguilar D., Yamal JM., **Maroufy V.**, et al. (2020) Machine learning prediction of the adverse outcome for nontraumatic subarachnoid hemorrhage patients, *Annals of Clinical and Translational Neurology*; 7(11):2178-85.
- Patra BG., Soltanalizadeh B., Deng N., Wu L., **Maroufy V.**, et al. (2020) An Informatics Research Platform to Make Public Gene Expression Time-Course Datasets Reusable for More Scientific Discoveries. *Database 2020*
- Maroufy, V.**, Shah, P., Asghari, et al. (2020). Gene Expression Dynamic Analysis Reveals Co-activation of Sonic Hedgehog and Epidermal Growth Factor Followed by Dynamic Silencing. *Oncotarget*, 11(15), 1358.
- Brown DW, DeSantis SM, Greene TJ, **Maroufy V**, et al. A Novel Approach for Propensity Score Matching and Stratification for Multiple Treatments: Application to an Electronic Health Record-derived Study. *Stat Med.* (2020);39(17): 2308-2323. doi:10.1002/sim.8540
- Williams G, **Maroufy V**, Rasmy L, DeSantis SM., et al. (2020), Vasopressor Treatment and Mortality Following Nontraumatic Subarachnoid Hemorrhage: a Nationwide Electronic Health Record Analysis. *Neurosurgical Focus.* 1;48(5):E4.
- Patra BG., **Maroufy V.**, Soltanalizadeh B., Deng N., Zheng WJ., Roberts K., and Wu H. (2020). A Content-Based Literature Recommendation System for Datasets to Improve Data Reusability-A Case Study on Gene Expression Omnibus (GEO) Datasets. *Journal of Biomedical Informatics*, 103399.
- Maroufy V. and Marriott P. (2020) Local and Global Robustness with Conjugate and Sparsity Priors. *Statistica Sinica* 30 (2), 579-599.

- Soltanalizadeh B., Rodriguez EG., **Maroufy V.**, Zheng WJ., and Wu H. (2020). Modelling of Hypoxia Gene Expression for Three Different Cancer Cell Lines. *International journal of computational biology and drug design*, 13(1), 124-143.
- Maroufy V.** and Marriott P., (2017) Mixture Models: Building a Parameter Space. *Statistics and Computing*, 27(3), 591-597.
- Maroufy V.**, Marriott P. and Pezeshk H., (2014). An Optimization Approach To Calculating Sample Size With Binary Responses. *Journal of Biopharmaceutical Statistics*, 24(4),715-731.
- Pezeshk H., Nematollahi N., **Maroufy, V.**, Marriott P. and Gittins J., (2013). Bayesian Sample Size Calculation for Estimation of the Difference of Two Binomial Proportions. *Statistical Methods in Medical Research (SMMR)*, 22(6), 598-611.
- Pezeshk H., Nematollahi N., **Maroufy, V.** and Gittins J., (2009). The Choice of Sample Size; A Mixed Bayesian / Frequentist Approach. *Statistical Methods in Medical Research (SMMR)*, 18 (2), 183-194.
- Bidarbakht-nia A. and **Maroufy V.** (2007). Equivalent Linear Composition as an Efficient Stratification Factor in Multipurpose Surveys. *Journal of Statistical Research of Iran*, 217-225
- Pezeshk H. and **Maroufy, V.** (2005). A Fully Bayesian Sample Size Determination for Inference of the Difference of Two Independent Binomial Proportions. *Iranian Int. Journal of Science*, 6(2), 203-212.

BOOKS

Wu, H., Yamal, J. M., Yaseen, A., **Maroufy, V.** (Eds.). (2020). Statistics and Machine Learning Methods for EHR Data: From Data Extraction to Data Analytics. *CRC Press*.

BOOK
CHAPTERS

Talebi, Y., Feng, H., Huang, Y., and **Maroufy, V.**, Chapter 4: EHR Data Cleaning (2020), in Statistics and Machine Learning Methods for EHR Data: From Data Extraction to Data Analytics. *CRC Press*.

Zhang, C., Chen, B., **Maroufy, V.**, Wu, H., Chapter 6: Missing Data Issues in Electronic Health Records (2020), in Statistics and Machine Learning Methods for EHR Data: From Data Extraction to Data Analytics. *CRC Press*.

Zhu, G., Brito, F., **Maroufy, V.**, DeSantis, S. Chapter 8: EHR Data Exploration, Analysis and Predictions (2020), Statistics and Machine Learning Methods for EHR Data: From Data Extraction to Data Analytics. *CRC Press*.

Maroufy V., Marriott P. (2019) Generalising Frailty Assumptions in Survival Analysis: A Geometric Approach. In: Nielsen F. (eds) Geometric Structures of Information. *Signals and Communication Technology*. Springer, Cham. https://doi.org/10.1007/978-3-030-02520-5_7

Maroufy V. and Marriott P., (2015) Computing Boundaries in Local Mixture Models. *Geometric Science of Information, Lecture Notes in Computer Science*, 9389. p 577-585.

PREFERRED
CONFERENCE
PUBLICATIONS
AND
PRESENTATIONS

- Maroufy, V., Marriott, P. (2015). Computing Boundaries in Local Mixture Models. 2nd *International Conference of Geometric Science of Information (GSI), Paris.*
- Maroufy, V., Marriott, P. (2013). Computational Aspects of Inference in Local Mixture Models. 41st *Annual Meeting of the Statistical Society of Canada (SSC).*
- Pezeshk, H. and Maroufy, V. (2012). Shannon Information for Expected Net Gain of Sampling, 11th *Iranian Statistical Conference.*
- Maroufy, V., Marriott, P. (2011). Geometry of local mixture models, *Workshop on Geometric and Algebraic Statistics 3 (WOGAS3).*
- Pezeshk, H. and Maroufy, V. (2005). Bayesian Sample Size Calculation for Inference on Binomial Proportions. 35th *Iranian Conference of Mathematics.*

TEACHING

- (2020-current); *Instructor*, Generalized Linear Modeling, PhD level. Department of Biostatistics and Data Science, University of Texas Health
- (2018-current); *Instructor*, Applied Statistical Modeling (PH 1820); Graduate level, Department of Biostatistics and Data Science, University of Texas Health
- Winter (2016); *Instructor*, Instructor, Statistical Inference and Modeling (Stat 231); Undergraduate level, Department of Statistics and Actuarial Science, University of Waterloo

SELECTED
FUNDED &
COLLABORATIVE
PROJECTS

- Research Panel of Veterans with History of Incarceration – National Veterans Homeless and Other Poverty Experiences (NV-HOPE) Project Number: 36C24E24N0204 09/01/2024 – 08/31/2025 PD/PI: Alexander Testa (Contact PI) and Vahed Maroufy
- A Pragmatic Randomized Trial Integrating Homelessness Diversion Services into an Emergency Department Discharge System Project Number: R01MD018213 09/26/2022 – 11/30/2025 PD/PI: Vanessa Schick / Jack Tsai Role: Co-Investigator
- TEPHI Data/Data Access/Data Science 11/08/2021 – 10/31/2026 PD/PI: Eric Boerwinkle Role: Co-Investigator
- Vale+Tu Salud: Corner-Based Randomized Trial to Test a Latino Day Laborer Program Adapted to Prevent COVID-19 Project Number: R01MD016328 07/01/2021 – 03/31/2026 PD/PI: Maria Fernandez-Esquer Role: Co-Investigator
- Vale+Tu Salud: Targeting psychosocial stressors to reduce Latino Day Laborers Injury Disparities Project Number: R01MD012928 09/01/2018 – 03/31/2025 PD/PI: Maria Fernandez-Esquer Role: Co-Investigator
- Harris Health PCORI HS II Capacity Building Project Number: ADH-515 07/01/2023 – 12/31/2024 PD/PI: S. Sharma Role: Co-Investigator
- Oral Health and Dental Care Utilization among Formerly Incarcerated Older Adults in the United States Project Number: R03DE033486 04/01/2024 – 03/31/2026 PD/PI: A. Testa Role: Co-Investigator
- A Pragmatic Randomized Trial Integrating Homelessness Diversion Services into an Emergency Department Discharge System Start and End Date 09/2022 to 08/2025 PD/PI: Vanessa Schick / Jack Tsai Total Award Amount : \$1,559,995. Role: Co-Investigator

A Prescription for Health Living Project/Proposal Start and End Date 12/15/2021 to 02/16/2025. PD/PI: Shreela Sharma. Total Award Amount: \$511,809 Role: Co-Investigator

EDITORIAL
ACTIVITIES

- Journal of American Heart Association (JAHA) **Statistical Editor** 2023-current
- Journal of American Heart Association (JAHA) Statistical reviewer 2021-2023
- Annals of Clinical and Transnational Neurology
- Statistics in Medicine
- Statistics and Its Interface

AWARDS, HONORS
& SCHOLARSHIPS

- SSC Travel Grant and Honorary Presentation Award, 2013.
- International Doctorate Student Award, 2009-2012.
- Mathematics Senate Graduate Scholarship, 2012.
- Statistics and Actuarial Science Chair's Award, 2011-2012.
- CRISM Bursary for presentation at WOGAS3 Workshop, 2011.
- Mathematics Graduate Experience Award, 2010-2011.
- University of Waterloo Graduate Scholarship, 2011.
- Rank First in MSc. Studies.

TECHNICAL
SKILLS

Programming: R, Matlab

REFERENCES
AVAILABLE TO
CONTACT

Prof. Hulin Wu (e-mail: Hulin.Wu@uth.tmc.edu)

- Professor, Chair, Biostatistics and Data Science, University of Texas Health
- *Prof. Wu is my Post-doctoral Advisor.*

Prof. Paul Marriott (e-mail: pmarriott@uwaterloo.ca)

- Associate Chair-Graduate Studies, Professor
Statistics and Actuarial Science, University of Waterloo
- *Prof. Marriott was my PhD Supervisor.*

Prof. George W. Williams (e-mail: george.w.williams@uth.tmc.edu)

- Associate Professor, Vice Chair of Critical Care Medicine
Anesthesiology, University of Texas Health

Prof. Michael Swartz (e-mail: Michael.D.Swartz@uth.tmc.edu)

- Associate Professor
Biostatistics and Data Science, University of Texas Health