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Academic profiles: Google Scholar, ORCID, CRAN (SpatGC)

Research Interests

- Spatial and spatio-temporal statistics
- Bayesian hierarchical modeling; INLA and MCMC
- Generalized linear mixed models (GLMMs)
- Correlated count data modeling
- Time-to-events data modeling

Academic Appointments and Leadership

- 2022–present **Associate Professor of Statistics**, *Department of Statistics, Faculty of Mathematical Sciences, Shahrood University of Technology, Shahrood, Iran.*
- 2011–2022 **Assistant Professor**, *Shahrood University of Technology, Shahrood, Iran.*
- 2018–2019 **Head of Statistics Department**, *Shahrood University of Technology, Shahrood, Iran.*
- 2024–2026 **Director, Webinars Committee**, *Board of Directors, Iranian Statistical Society.*
- 2026–2028 **Member, Board of Directors**, *Iranian Statistical Society.*
- 2004–2007 **Data Analyst**, *Statistics and Information Technology Organization of Mashhad Municipality, Mashhad, Iran.*

Education and Visiting Research

- 2007–2011 **Ph.D. in Statistics**, *Tarbiat Modares University, Tehran, Iran, Dissertation: Analyzing Spatial GLMMs via Data Cloning and Composite Likelihood Methods.*
- 2004–2005 **M.Sc. in Statistics**, *Ferdowsi University of Mashhad, Mashhad, Iran, Thesis: Composite Likelihood Based Inferences for Count Time Series.*

1999–2003 **B.Sc. in Statistics**, *Ferdowsi University of Mashhad*, Mashhad, Iran.

Visiting Research

Feb–Aug 2010 **Visiting Research Student**, *Norwegian University of Science and Technology (NTNU)*, Trondheim, Norway, Research collaboration with Professor Håvard Rue.

Honors and Awards

- 2022 **Dr. Bozorgnia Award (Top Reviewer of Journals and Conferences)**, *Iranian Statistical Society*.
- 2016 **Dr. Bozorgnia Award (Top Reviewer of Journals and Conferences)**, *Iranian Statistical Society*.
- 2015 **Dr. Bozorgnia Award (Top Reviewer of Journals and Conferences)**, *Iranian Statistical Society*.
- 2010–2011 **Visiting Research Award**, *Ministry of Science, Research and Technology of Iran*.
- 2008–2011 **Ph.D. Scholarship**, *Ministry of Science, Research and Technology of Iran*.
- 2002–2005 **M.Sc.-period distinctions**, *9th place in the national M.Sc. entrance examination in Mathematical Statistics; 3rd place in the 3rd National Statistics Student Contest; Distinguished Student of the Faculty of Mathematics, Ferdowsi University of Mashhad; Distinguished Student of Ferdowsi University of Mashhad.*

Professional Affiliations and Activities

- 2026–2028 **Member, Board of Directors**, *Iranian Statistical Society*.
- 2024–2026 **Director, Webinars Committee**, *Iranian Statistical Society Board of Directors*.
- 2020 **Member, Election Committee for the 15th Board of Directors**, *Iranian Statistical Society*.
- 2003–present **Iranian Statistical Society**, Lifetime Member.
- 2009–present **Iranian Mathematical Society**, Member.
- 2013 **American Statistical Association (ASA)**, Member.
- 2013 **International Society for Bayesian Analysis (ISBA)**, Member.
- 2017–2025 **Member, Scientific Committee**, *2nd to 6th Seminars on Spatial Statistics and Its Applications*, Shahrood–Zanjan–Tehran–Qazvin–Semnan, Iran.
- 2017 **Member, Scientific and Organizing Committees (Secretariat Director)**, *14th Iranian Statistical Conference*, *Shahrood University of Technology*, Shahrood, Iran.
- 2016 **Member, Organizing Committee**, *Second Seminar on Spatial Statistics and Its Applications*, Shahrood, Iran.

Refereeing Service

Journals

- 1) Accident Analysis and Prevention
- 2) Applied Mathematical Modelling
- 3) Australian & New Zealand Journal of Statistics
- 4) BMC Public Health

- 5) The Canadian Journal of Statistics
- 6) Computational Statistics
- 7) Computational Statistics & Data Analysis
- 8) Discrete Dynamics in Nature and Society
- 9) Discover Data
- 10) Environmetrics
- 11) Iranian Journal of Mathematical Sciences and Informatics
- 12) International Journal of Nonlinear Analysis and Applications
- 13) Journal of Big Data
- 14) Journal of Mathematics
- 15) Journal of Multivariate Analysis
- 16) Journal of Sciences, Islamic Republic of Iran (Tehran University)
- 17) Journal of Statistical Modelling: Theory and Applications (Yazd University)
- 18) Journal of Statistical Research of Iran
- 19) Journal of the Iranian Statistical Society (JIRSS)
- 20) PLOS ONE
- 21) Scientific Reports
- 22) Statistics in Medicine
- 23) Statistics, Optimization & Information Computing
- 24) Statistical Papers
- 25) Stochastic Models in Probability and Statistics (Ferdowsi University of Mashhad)
- 26) AUT Journal of Mathematics and Computing (Amirkabir University)
- 27) Journal of Statistical Sciences (in Farsi)
- 28) Journal of Advanced Mathematical Modeling (in Farsi)
- 29) Journal of Science (Kharazmi University) (in Farsi)
- 30) Iranian Journal of Official Statistics Studies (in Farsi)
- 31) NEDA: Student Statistical Journal (in Farsi)
- 32) Quarterly Journal of Geosciences (in Farsi)
- 33) Iranian Water and Environmental Engineering Journal (in Farsi)
- 34) Mathematical Researches (in Farsi)
- 35) Journal of Petroleum Geomechanics (in Farsi)

Conferences

- 1) 11th to 18th Iranian Statistical Conferences
- 2) 11th to 15th Seminars on Probability and Stochastic Processes
- 3) 47th Annual Iranian Mathematics Conference, 2016, Karaj, Iran
- 4) 2nd to 6th Seminars on Spatial Statistics and Its Applications

Publications

Peer-Reviewed Journal Articles – Published/Accepted

- 1 M. Nadifar, **H. Baghishani**, T. Kneib, and A. Fallah (2026). Flexible Bayesian modeling of non-equidispersed counts with penalized complexity priors in disease incidence studies. *Statistical Methods in Medical Research*, 35(4), 713–735. doi:10.1177/09622802261416088.
- 2 B. Hamidian, **H. Baghishani**, and N. Eghbal (2026). A spatial mean-mixture Gaussian model for skewed geostatistical data. *Environmetrics*, 37(6), e70127. doi:10.1002/env.70127.

- 3 S. Zarei Doudeji, **H. Baghishani**, R. Bagheri, and H. Jafari (2026). Adaptive ensemble forecasting of groundwater levels in a complex semi-arid aquifer (Kazerun region, Iran) with implications for SDG 13. *Groundwater for Sustainable Development*, 35, 101680. doi:10.1016/j.gsd.2026.101680.
- 4 F. Fakhri, D. Mansourian, **H. Baghishani**, A. Elyasi, E. Makarian, and F. Saberi (2025). Innovative numerical techniques for calculating rock strength characteristics: Leveraging integrated machine learning and geostatistical methods. *Geomechanics and Engineering*, 40(3), 205–216. doi:10.12989/gae.2025.40.3.205.
- 5 A. R. Boskabadi, A. R. Arab-Amiri, B. Tokhmechi, and **H. Baghishani** (2024). 3D modeling of ore grade with an approximate Bayesian approach. *Scientific Quarterly Journal of Geosciences*, 34(4), 23–36. doi:10.22071/gsj.2024.433476.2129.
- 6 S. S. Mousavi, A. Mohammadpour, and **H. Baghishani** (2024). Hierarchical clustering with spatial adjacency constraints in heavy-tailed areal data. *Communications in Statistics – Simulation and Computation*, 53(11), 5385–5405. doi:10.1080/03610918.2023.2184761.
- 7 M. Nadifar, **H. Baghishani**, and A. Fallah (2023). A flexible generalized Poisson likelihood for spatial counts constructed by renewal theory, motivated by groundwater quality assessment. *Journal of Agricultural, Biological and Environmental Statistics*, 28, 365–386. doi:10.1007/s13253-023-00540-7.
- 8 J. Ownuk, A. Nezakati, and **H. Baghishani** (2023). Developing flexible classes of distributions to account for both skewness and bimodality. *Journal of the Iranian Statistical Society*, 22, 1–33. doi:10.22034/jirss.2023.1999147.1012.
- 9 S. E. Hosseini, D. Shahsavani, M. R. Rabiei, M. Arashi, and **H. Baghishani** (2022). Small area estimation using a semiparametric spatial model with application in insurance. *Symmetry*, 14, 2194. doi:10.3390/sym14102194.
- 10 L. Barmoudeh, **H. Baghishani**, and S. Martino (2022). Bayesian spatial analysis of crash severity data with the INLA approach: assessment of different identification constraints. *Accident Analysis and Prevention*, 167, 106570. doi:10.1016/j.apa.2022.106570.
- 11 M. Nadifar, **H. Baghishani**, and A. Fallah (2022). A flexible Bayesian non-confounding spatial model for analysis of dispersed count data. *Biometrical Journal*, 64(4), 758–770. doi:10.1002/bimj.202100157.
- 12 V. Ghavami, M. Mahmoudi, A. R. Foroushani, **H. Baghishani**, M. Yaser, and F. Homaei Shandiz (2021). A competing risks cure frailty model: An application to relapse-free survival of breast cancer patients. *Pakistan Journal of Statistics and Operation Research*, 17, 591–605. doi:10.18187/pjsor.v17i3.3397.
- 13 E. Nazar, **H. Baghishani**, H. Doosti, V. Ghavami, E. Aryan, M. Nasehi, S. Sharafi, H. Esmaily, and J. Yazdani (2021). Bayesian Spatial Survival Analysis of Duration to Cure among New Smear-Positive Pulmonary Tuberculosis (PTB) Patients in Iran, during 2011–2018. *International Journal of Environmental Research and Public Health*, 18(1), 54. doi:10.3390/ijerph18010054.
- 14 J. Ownuk, **H. Baghishani**, and A. Nezakati (2021). Heavy or semi-heavy tail, that is the question. *Journal of Applied Statistics*, 48, 646–668. doi:10.1080/02664763.2020.1738360.
- 15 V. Ghavami, M. Mahmoudi, A. R. Foroushani, **H. Baghishani**, F. Homaei Shandiz, and M. Yaseri (2017). Long-Term Disease-Free Survival of Non-Metastatic Breast Cancer Patients in Iran: A Survival Model with Competing Risks Taking Cure Fraction and Frailty into Account. *Asian Pacific Journal of Cancer Prevention*, 18(10), 2825–2832. doi:10.22034/APJCP.2017.18.10.2825.
- 16 E. Eshaghi, **H. Baghishani**, and D. Shahsavani (2016). Time-varying coefficients models for recurrent event data when different varying coefficients admit different degrees of smoothness: application to heart disease modeling. *Statistics in Medicine*, 35(23), 4166–4182. doi:10.1002/sim.6995.

- 17 **H. Baghishani** and M. Mohammadzadeh (2012). Asymptotic normality of posterior distributions for generalized linear mixed models. *Journal of Multivariate Analysis*, 111, 66–77. doi:10.1016/j.jmva.2012.05.003.
- 18 **H. Baghishani**, H. Rue, and M. Mohammadzadeh (2012). On a hybrid data cloning method and its application in generalized linear mixed models. *Statistics and Computing*, 22, 597–613. doi:10.1007/s11222-011-9254-z.
- 19 **H. Baghishani** and M. Mohammadzadeh (2011). A data cloning algorithm for computing maximum likelihood estimates in spatial generalized linear mixed models. *Computational Statistics & Data Analysis*, 55, 1748–1759. doi:10.1016/j.csda.2010.11.004.

Peer-Reviewed Journal Articles – In Farsi

- 1 A. Beheshty, **H. Baghishani**, M. H. Behzadi, G. Yari, and D. Turek (2025). Analysis of housing prices in Mashhad City with a two-stage heterogeneous spatial modeling framework. *Journal of Statistical Sciences* (in Farsi), 19(1), 29–55. doi:10.61186/jss.19.1.8.
- 2 M. Nadifar, **H. Baghishani**, and A. Fallah (2021). Analysis of spatio-temporal count data with a flexible gamma count model. *Journal of Statistical Sciences* (in Farsi), 15, 275–301.
- 3 N. Eghbal and **H. Baghishani** (2020). Bayesian analysis of spatial count data in finite populations with stochastic partial differential equation approach. *Journal of Statistical Sciences* (in Farsi), 14, 307–334.
- 4 J. Ownuk, **H. Baghishani**, and A. Nezakati (2020). Semi-parametric location-scale regression model with semi-heavy tails based on hyperbolic secant distribution. *Journal of Advanced Mathematical Modeling* (in Farsi), 10(1), 1–20.
- 5 L. Abedinpour, **H. Baghishani**, and N. Eghbal (2019). Bayesian analysis of stomach cancer rates in Guilan province with spatial beta-binomial model. *Journal of Advanced Mathematical Modeling* (in Farsi), 9(1), 27–43.
- 6 S. Eshaghi, **H. Baghishani**, and N. Eghbal (2018). A new model selection criterion based on data cloning. *Journal of Statistical Sciences* (in Farsi), 12, 21–37.
- 7 B. Hamidian and **H. Baghishani** (2017). Spatial design for knot selection in low-rank models. *Andisheh-ye Amari* (in Farsi), 43, 73–84.
- 8 E. Eshaghi, **H. Baghishani**, and D. Shahsavani (2015). Application of semi-parametric survival models in evaluating time-dependent risk factors on the rate of shocks to heart patients. *Razi Journal of Medical Sciences* (in Farsi), 22, 10–17.
- 9 E. Eshaghi, **H. Baghishani**, and D. Shahsavani (2013). Fitting semi-parametric survival models with time-dependent effects for recurrent event data using kernel method. *Journal of Statistical Sciences* (in Farsi), 7, 1–24.
- 10 M. T. Shakeri, V. Ghavami Ghanbarabadi, H. Esmaily, H. Jabbari Nooghabi, F. Homaei Shandiz, and **H. Baghishani** (2011). Analysis of breast cancer survival data with Cox proportional hazards model for dependent censoring based on copula function. *Journal of North Khorasan University of Medical Sciences* (in Farsi), 3, 53–64.
- 11 **H. Baghishani** and S. M. M. Tabatabaey (2007). Composite likelihood inference and model selection in parameter-driven models. *Journal of Statistical Sciences* (in Farsi), 1, 1–5.
- 12 **H. Baghishani** and V. Partovi Nia (2007). A review of discrimination methods. *NEDA* (in Farsi), 3, 26–35.
- 13 **H. Baghishani** and V. Partovi Nia (2006). Regression with ordinal response and cumulative logit models. *NEDA* (in Farsi), 2, 32–37.

Book Chapters

- 1 **H. Baghishani** and J. Ownuk (2022). A flexible matrix-valued response regression for skewed data. In *Innovations in Multivariate Statistical Modeling*, pp. 169–185. doi:10.1007/978-3-031-13971-0_8.

Conference Proceedings

- 1 H. Baghishani and M. Mohammadzadeh (2010). A data cloning algorithm for computing MLE in spatial GLMMs. *Proceedings of the 23rd Nordic Conference on Mathematical Statistics (NORDSTAT 2010)*, Voss, Norway.
- 2 H. Baghishani (2014). Approximate Bayesian inference in spatial beta regression models. *12th Iranian Statistical Conference*, Kermanshah, Iran.
- 3 M. Moghaddam, D. Shahsavani, M. Koneshloo, and H. Baghishani (2014). Determining Top-Cut boundaries in spatial data with Top-Cut method. *12th Iranian Statistical Conference*, Kermanshah, Iran.
- 4 E. Eshaghi, H. Baghishani, and D. Shahsavani (2014). Semiparametric models for recurrent survival data with different smoothness for time-varying coefficients. *12th Iranian Statistical Conference*, Kermanshah, Iran.
- 5 S. Mohammadi, D. Shahsavani, and H. Baghishani (2015). Variable selection in big data. *1st National Conference on Soft Computing*, Rasht, Iran.
- 6 E. Eshaghi and H. Baghishani (2016). Bias reduction of semiparametric survival model estimators using bootstrap. *13th Iranian Statistical Conference*, Kerman, Iran.
- 7 B. Hamidian and H. Baghishani (2016). Dynamic low-rank models for Bayesian analysis of massive spatio-temporal data. *13th Iranian Statistical Conference*, Kerman, Iran.
- 8 S. Mohammadi, D. Shahsavani, and H. Baghishani (2016). The role of interactions in reducing classification error for high-dimensional data. *13th Iranian Statistical Conference*, Kerman, Iran.
- 9 M. Nadifar, H. Baghishani, and A. Fallah (2016). Bayesian analysis of geostatistical data with gamma count regression. *13th Iranian Statistical Conference*, Kerman, Iran.
- 10 J. Ownuk, A. Nezakati, and H. Baghishani (2017). Asymptotic behavior of maximum likelihood estimators in linear regression with bimodal errors. *11th Seminar on Probability and Stochastic Processes*, Qazvin, Iran.
- 11 L. Abedinpour Liarjadmeh, H. Baghishani, and N. Eghbal (2017). Spatial prediction in beta-binomial processes. *11th Seminar on Probability and Stochastic Processes*, Qazvin, Iran.
- 12 M. Abedi Mehr, N. Eghbal, and H. Baghishani (2017). Analysis of fraud in banking facilities using survival models. *11th Seminar on Probability and Stochastic Processes*, Qazvin, Iran.
- 13 M. Nadifar, H. Baghishani, and A. Fallah (2017). Bayesian small area estimation under spatial gamma count distribution. *11th Seminar on Probability and Stochastic Processes*, Qazvin, Iran.
- 14 S. Habibi Komani, N. Eghbal, and H. Baghishani (2017). Complete consistency of least squares estimators in regression models with NSD errors. *11th Seminar on Probability and Stochastic Processes*, Qazvin, Iran.
- 15 H. Baghishani and M. Arashi (2017). Spatial analysis of crime rate in Tehran. *2nd Seminar on Spatial Statistics and Its Applications*, Shahrood, Iran.
- 16 F. Shiasi, H. Baghishani, and N. Eghbal (2017). Approximate Bayesian inference of spatial point patterns of earthquakes in northwest Iran using Log-Gaussian Cox processes. *2nd Seminar on Spatial Statistics and Its Applications*, Shahrood, Iran.
- 17 M. Badakhshan, N. Eghbal, and H. Baghishani (2017). Bayesian analysis of semiparametric spatial models. *2nd Seminar on Spatial Statistics and Its Applications*, Shahrood, Iran.
- 18 J. Ownuk, H. Baghishani, and A. Nezakati (2017). Spatial regression for bimodal and skewed data. *2nd Seminar on Spatial Statistics and Its Applications*, Shahrood, Iran.

- 19 M. Nadifar, H. Baghishani, and A. Fallah (2017). ML estimation of small areas for spatial gamma count responses using HDC method. *2nd Seminar on Spatial Statistics and Its Applications*, Shahrood, Iran.
- 20 M. Taavoni, H. Baghishani, and M. Arashi (2018). Stein-type and pretest estimators in spatial autoregressive models. *2nd Seminar on Spatial Statistics and Its Applications*, Shahrood, Iran.
- 21 L. Abedinpour, H. Baghishani, and N. Eghbal (2017). Spatial prediction of rate responses: comparison of beta-binomial kriging and binomial cokriging models. *2nd Seminar on Spatial Statistics and Its Applications*, Shahrood, Iran.
- 22 L. Abedinpour, H. Baghishani, and N. Eghbal (2017). Prediction of rainfall rate in Semnan province with spatial beta-binomial model. *2nd National Conference on Soft Computing*, Rasht, Iran.
- 23 F. Kojoori and H. Baghishani (2018). Increasing efficiency of MCMC algorithms by optimal component blocking. *49th Iranian Mathematics Conference*, Tehran, Iran.
- 24 M. Mirzajani Bajestani and H. Baghishani (2018). Spatio-temporal analysis of groundwater quality in Golestan province with approximate Bayesian approach. *14th Iranian Statistical Conference*, Shahrood, Iran.
- 25 M. Yousefi, H. Baghishani, and M. R. Rabiei (2018). Bayesian spatial small area estimation for compulsory insurance in Guilan province. *14th Iranian Statistical Conference*, Shahrood, Iran.
- 26 M. Manoochehrnejhad, M. H. Noori Skandari, N. Eghbal, and H. Baghishani (2018). Image reconstruction in medical SPECT based on negative binomial model. *14th Iranian Statistical Conference*, Shahrood, Iran.
- 27 F. Barahooi, H. Baghishani, and M. Arashi (2018). Improving efficiency in covariance regression model by shrinking. *14th Iranian Statistical Conference*, Shahrood, Iran.
- 28 J. Ownuk, A. Nezakati, and H. Baghishani (2018). Multivariate hyperbolic secant distribution. *14th Iranian Statistical Conference*, Shahrood, Iran.
- 29 J. Ownuk and H. Baghishani (2019). Spatial distribution regression with semi-heavy tails. *3rd Seminar on Spatial Statistics and Its Applications*, Zanjan, Iran.
- 30 F. Fakhri, H. Baghishani, and B. Tokhmechi (2019). 3D spatial prediction for estimating uniaxial compressive strength in an Iranian oil reservoir. *3rd Seminar on Spatial Statistics and Its Applications*, Zanjan, Iran.
- 31 M. Nadifar, H. Rue, H. Baghishani, T. Kneib, and A. Fallah (2019). A flexible Bayesian spatial model for overdispersed and underdispersed count data. *The Statistical Analysis for Space-Time Data Conference*, Lisbon, Portugal
- 32 M. Nadifar and H. Baghishani (2020). Disease mapping with a flexible Poisson model. *15th Iranian Statistical Conference*, Yazd, Iran.
- 33 M. Nadifar and H. Baghishani (2020). A flexible Bayesian spacetime model for dispersed count data using PC priors. *Bernoulli-IMS One World Symposium*, University of Mannheim, Germany.
- 34 F. Fakhri and H. Baghishani (2021). Analysis of geostatistical data in 3D random fields with a nonparametric approach. *4th Seminar on Spatial Statistics and Its Applications*, Tehran, Iran.
- 35 M. Nadifar, H. Baghishani, and A. Fallah (2021). A non-confounding Bayesian spatial model based on flexible gamma count model. *4th Seminar on Spatial Statistics and Its Applications*, Tehran, Iran.
- 36 M. Nadifar and H. Baghishani (2022). Joint modeling of spatial dependence, zero-inflation, and under/over-dispersion of count responses. *16th Iranian Statistical Conference*, Babolsar, Iran.

- 37 N. Nakhaei, M. Nadifar, H. Baghishani, and N. Eghbal (2023). Modeling multivariate spatial responses in GAMLSS with copula. *5th Seminar on Spatial Statistics and Its Applications*, Qazvin, Iran.
- 38 N. Nakhaei, M. Nadifar, H. Baghishani, and N. Eghbal (2024). Modeling overdispersed multivariate spatial count data. *17th Iranian Statistical Conference*, Birjand, Iran.
- 39 B. Hamidian, H. Baghishani, N. Eghbal, and J. Ownuk (2024). Analysis of skewed spatial data using a mixture-mean Gaussian model. *17th Iranian Statistical Conference*, Birjand, Iran.
- 40 M. Nadifar and H. Baghishani (2025). A non-confounded spatio-temporal count model for analysis of wet-day frequency data. *6th Seminar on Spatial Statistics and Its Applications*, Semnan University, Iran.
- 41 F. Fakhri, H. Baghishani, and A. Nezakati (2026). Simulation and likelihood-based inference of a bivariate spatial model with a spectral approach. *18th Iranian Statistical Conference*, Khajeh Nasir Toosi University of Technology, Tehran, Iran.

Research Software

- **SpatGC: Bayesian Modeling of Spatial Count Data**, R package on CRAN, version 0.1.0 (2024). Co-author with Mahsa Nadifar. CRAN package page; doi:10.32614/CRAN.package.SpatGC.

Funded Research Projects and Grants

- 1 **Investigation of suicide rate in the population covered by Mashhad University of Medical Sciences using Bayesian spatial count modeling.** Co-Investigator: V. Ghavami, **H. Baghishani**, E. Mousa Farkhani, F. Hosseinzadeh, N. S. Taghavi Razavizadeh. Funded by: Mashhad University of Medical Sciences Research Deputy. Project No.: 4022718. 2024–2026.
- 2 **Investigation of leishmaniasis incidence rate and its related factors in Razavi Khorasan province using Bayesian spatial count modeling.** Co-Investigator: V. Ghavami, **H. Baghishani**, E. Mousa Farkhani, N. S. Taghavi Razavizadeh. Funded by: Mashhad University of Medical Sciences Research Deputy. Project No.: 4022719. 2024–2026.
- 3 **Modeling of suicide methods in the population covered by Mashhad University of Medical Sciences using spatial multinomial logit model.** Co-Investigator: V. Ghavami, **H. Baghishani**, E. Mousa Farkhani, F. Hosseinzadeh. Funded by: Mashhad University of Medical Sciences Research Deputy. Project No.: 4022720. 2024–2026.
- 4 **Investigation of the relationship between air pollution and cardiopulmonary emergency dispatches to Mashhad pre-hospital emergency using joint generalized linear models during 2017–2022.** Co-Investigator: V. Ghavami, **H. Baghishani**, M. Sorkhosh, T. Akbari Khalaj, I. Sarbisheh Nogharkaray. Funded by: Mashhad University of Medical Sciences Research Deputy. Project No.: 4032617. 2025–2027.
- 5 **Spatio-temporal modeling of the relationship between PM2.5 and the number of cardiopulmonary emergency dispatches to Mashhad pre-hospital emergency during 2017–2023 with integrated nested Laplace approximation.** Co-Investigator: V. Ghavami, **H. Baghishani**, M. Sorkhosh, T. Akbari Khalaj. Funded by: Mashhad University of Medical Sciences Research Deputy. Project No.: 4032701. 2025–2026.

- 6 **Spatio-temporal modeling of years of life lost due to colorectal cancer in Razavi Khorasan province during 2015–2025.** Co-Investigator: V. Ghavami, F. Hosseinzadeh, **H. Baghishani**, E. Mousa Farkhani. Funded by: Mashhad University of Medical Sciences Research Deputy. Project No.: 4041806. 2026–2027.
- 7 **Spatio-temporal analysis of years of potential life lost (YPLL) due to road and urban traffic accidents in Razavi Khorasan province during 2015–2025.** Co-Investigator: V. Ghavami, **H. Baghishani**, E. Mousa Farkhani. Funded by: Mashhad University of Medical Sciences Research Deputy. Project No.: 4043022. 2026–2027.

Postgraduate Research Supervision

PhD Students (Completed)

- 1 **Vahid Ghavami Ghanbarabadi** (2018). Competing Risks Survival Models with Cure Fraction and Frailty and Its Application in Medical Data. Supervisors: A. R. Foroushani and M. Mahmoudi; Advisors: M. Yaseri, **H. Baghishani**, and F. Homaei Shandiz. Completed.
- 2 **Mahsa Nadifar** (2021). Analysis of Spatial Gamma Count Models. Supervisors: **H. Baghishani** and A. Fallah. Completed.
- 3 **Jamil Ownuk** (2020). Bimodal-Unimodal Distributions and Its Applications. Co-supervisor with A. Nezakati Rezazadeh. Completed.
- 4 **Leila Barmoudeh** (2021). Bayesian Categorical Data Analysis with Spatial and Spatio-temporal Structures. Supervisor. Completed.
- 5 **Isa Nazar** (2021). Spatial Survival Modeling with Spatio-temporal Dependence and Its Application in Medical Sciences. Supervisors: H. Esmaily and J. Yazdani Cherati; Advisors: V. Ghavami, **H. Baghishani**, and H. Doosti. Completed.
- 6 **Ahmad Reza Boskabadi** (2024). 3D Modeling of Ore Grade with Integrated Nested Laplace Approximation and Stochastic Partial Differential Equations. Supervisors: A. R. Arab-Amiri and B. Tokhmechi; Advisor: **H. Baghishani**. Completed.

PhD Students (Ongoing)

- 7 **Nima Nakhaei** (started 2020). Bayesian Modeling of Multivariate Spatial Count Responses. Supervisors: **H. Baghishani** and N. Eghbal; Advisor: M. Nadifar. Ongoing.
- 8 **Bahman Hamidian** (started 2020). Analysis of Skewed Spatial Data Using a Mixture-Mean Gaussian Model. Supervisors: **H. Baghishani** and N. Eghbal; Advisor: J. Ownuk. Ongoing.
- 9 **Nader Nikandish** (started 2021). Development of Count Time Series Models Based on Renewal Process Theory. Supervisors: A. Nezakati Rezazadeh and **H. Baghishani**. Ongoing.
- 10 **Fataneh Fakhri** (started 2021). Multivariate Spatial Modeling Using Random Fourier Basis Functions in a Spectral Analysis Framework. Supervisors: A. Nezakati Rezazadeh and **H. Baghishani**. Ongoing.
- 11 **Rezvan Javanmard** (started 2021). Complete Convergence Rate of Weighted Sums of WOD Random Variables with Random Weights and Its Applications. Supervisor: A. Nezakati Rezazadeh; Advisor: **H. Baghishani**. Ongoing.
- 12 **Mohammad Ali Kianfard** (started 2021). Bayesian Cure Model with Change Point Based on Auxiliary Variable Threshold for Interval-Censored Data. Supervisors: V. Ghavami and **H. Baghishani**; Advisor: F. Homaei Shandiz. Ongoing.
- 13 **Farzaneh Amini** (started 2021). Spatio-temporal Modeling Based on Approximate Bayesian Methods with Emphasis on VEVAR for Diagnosis and Classification of Autism in fMRI Data. Supervisors: R. A. Mohammadpour Tahmtan and J. Yazdani Cherati; Advisors: **H. Baghishani** and S. Farnia. Ongoing.

- 14 **Fahimeh Hosseinzadeh** (started 2022). Joint Bayesian Modeling of Binary Responses and Cure Survival Data and Its Application in Cancer Patients in Iran. Supervisors: V. Ghavami and **H. Baghishani**; Advisor: I. Nazar. Ongoing.

Master's Students (Completed, 2012–2024)

- 1 **Mahdieh Nikoofard** (2024). Determining the Effect of Neighborhood Environment on Social Interaction and Well-being of Residents with an Emphasis on Neighborhood Parks. Supervisors: S. Dadpour and A. Dehghanmongabadi; Advisor: H. Baghishani. Completed.
- 2 **Mohaddeseh Nosrati** (2023). Meta-analysis Approach and Heterogeneity Modeling Using Meta-regression Models for Scientific Researches. Supervisor: H. Baghishani; Advisor: M. Nadifar. Completed.
- 3 **Sedigheh Mazhari** (2023). Strong Law for Weighted Sums of m-extended Negatively Dependent Random Variables and Its Applications. Supervisor: A. Nezakati Rezazadeh; Advisor: H. Baghishani. Completed.
- 4 **Mansoor Honarmand** (2023). Improving Walkability in Kerman Historic Fabric Through Urban Tourism Sustainable Development Approach. Supervisor: S. Dadpour; Advisor: H. Baghishani. Completed.
- 5 **Sahar Jader Ansari** (2022). Almost Sure Convergence of Weighted Sums of Negatively Superadditive Dependent Semi-Gaussian Random Variables. Supervisor: N. Eghbal; Advisor: H. Baghishani. Completed.
- 6 **Fataneh Fakhri** (2020). Bayesian 3D Geomechanical Modeling Using Geostatistical Models: A Case Study of an Iranian Oil Field. Supervisor: H. Baghishani; Advisor: B. Tokhmechi. Completed.
- 7 **Samaneh Darvishi** (2020). Robust M-tests in Linear Models with Negatively Superadditive Dependent Errors. Supervisor: N. Eghbal; Advisor: H. Baghishani. Completed.
- 8 **Fatemeh Ghanbari** (2019). Expectile and Quantile Regression Models: Relations and Properties. Supervisor: H. Baghishani. Completed.
- 9 **Neda Shams** (2018). Bayesian Analysis of Non-mixture Cure Rate Models with a Cox Semi-parametric Survival Function by Using P-splines. Supervisors: H. Baghishani and N. Eghbal. Completed.
- 10 **Mina Badakhshan** (2018). Bayesian Spatial Survival Models within the Parametric Proportional Hazards Framework. Supervisors: N. Eghbal and H. Baghishani. Completed.
- 11 **Akram Ghaemizadeh** (2018). The Spline Penalized and New Application. Supervisor: N. Eghbal; Advisor: H. Baghishani. Completed.
- 12 **Motahareh Yousefi** (2018). Bayesian Spatial and Non-Spatial Random Effects Models for Small Area Estimation. Supervisors: M. R. Rabiei and H. Baghishani. Completed.
- 13 **Masoud Manoochehrnejhad** (2018). Maximum Likelihood Approach to Reconstruct the Images "Single Photon Emission Computed Tomography". Supervisors: N. Eghbal and M. H. Noori Skandari; Advisor: H. Baghishani. Completed.
- 14 **Roya Payro oliya** (2018). Spatial Heterogeneity in Production Price Models by Using an Iterative Locally Weighted Regression Approach. Supervisor: H. Baghishani. Completed.
- 15 **Hossein Heidarinezhad** (2018). On the Strong Consistency of M-estimates in Linear Models for Negatively Superadditive Dependent Errors. Supervisor: N. Eghbal; Advisor: H. Baghishani. Completed.
- 16 **Faezeh Kojoori** (2018). Automated Parameter Blocking for Markov Chain Monte Carlo Sampling. Supervisor: H. Baghishani. Completed.
- 17 **Nasim Andakhs** (2018). Bayesian Inference in Spatial Expectile Regression Models. Supervisor: H. Baghishani. Completed.

- 18 **Mona Abedi Mehr** (2017). A Zero-inflated Cure Rate Regression Model and Its Application in Bank Loans. Supervisor: N. Eghbal; Advisor: H. Baghishani. Completed.
- 19 **Amir Aliniaei** (2017). Kumaraswamy Based Distribution and Their Generalization. Supervisor: A. Nezakati Rezazadeh; Advisor: H. Baghishani. Completed.
- 20 **Hassan Mohammadi** (2017). Bayesian Analysis of Density Regression for Discrete Responses. Supervisor: H. Baghishani. Completed.
- 21 **Leila Abedinpour** (2017). A Flexible Model for Spatial Prediction of Rate Responses by Using Beta-binomial Distribution. Supervisor: H. Baghishani; Advisor: N. Eghbal. Completed.
- 22 **Fateme Shiasi** (2017). Approximate Bayesian Inference of Complex Spatial Point Pattern Models Using Laplace Approximation. Supervisor: H. Baghishani; Advisor: N. Eghbal. Completed.
- 23 **Mahla Alimardani** (2017). Inverse Weibull Power Series Distributions: Properties and Applications. Supervisor: A. Nezakati Rezazadeh; Advisor: H. Baghishani. Completed.
- 24 **Khadijeh Soltani** (2017). Modeling Dependent Responses Using Gaussian Copula. Supervisors: H. Baghishani and M. Arashi. Completed.
- 25 **Masoud Mirzajani Bajestani** (2016). Approximate Bayesian Inference of Dynamic Regression Models Using Integrated Nested Laplace Approximation. Supervisor: H. Baghishani. Completed.
- 26 **Fatemeh Khodabakhshi Palandi** (2016). Component-Wise Markov Chain Monte Carlo: Uniform and Geometric Ergodicity under Mixing and Composition. Supervisor: N. Eghbal; Advisor: H. Baghishani. Completed.
- 27 **Fatemeh Kargar** (2016). Approximate Bayesian Inference in Non-homogeneous Poisson Processes with Application to Analysis of Recurrent Events. Supervisor: H. Baghishani. Completed.
- 28 **Samaneh Habibi Komani** (2016). Complete Convergence for Weighted Sums of NSD Random Variables and Its Application in the EV Regression Model. Supervisors: N. Eghbal and H. Baghishani. Completed.
- 29 **Samaneh Rahmani** (2016). Complete Convergence for the Estimator of Nonparametric Regression Model Based on Negatively Superadditive-dependent Errors. Supervisors: N. Eghbal and H. Baghishani. Completed.
- 30 **Solmaz Bolouri** (2016). Analysis of Unbalanced Binary Responses by Using Generalized Extreme Value Regression Model. Supervisor: H. Baghishani. Completed.
- 31 **Hadi Seyed Gharravi** (2016). Weibull Geometric Process Model for the Analysis of Accelerated Life Testing. Supervisor: A. Nezakati Rezazadeh; Advisor: H. Baghishani. Completed.
- 32 **Hanie Keihani** (2015). Beta Rectangular Regression for Modeling Proportion Responses. Supervisor: H. Baghishani. Completed.
- 33 **Saeed Mohammadi** (2015). Recognition of Effective Interactions for High Dimensional Data. Supervisors: D. Shahsavani and H. Baghishani. Completed.
- 34 **Bahman Hamidian** (2015). Gaussian Univariate and Multivariate Spatio-temporal Models for Large Geostatistical Data. Supervisor: H. Baghishani. Completed.
- 35 **Mohsen Mehdizadeh** (2015). A Bayesian Approach for the Reliability of a Parallel System in Stress-Strength Models. Supervisor: A. Nezakati Rezazadeh; Advisor: H. Baghishani. Completed.
- 36 **Mahnaz Ajam** (2014). Bayesian Analysis of Beta Regression Models with Dependent Responses. Supervisor: H. Baghishani. Completed.
- 37 **Saeed Afchangi** (2014). Approximate Bayesian Computation: Methods and Applications. Supervisor: H. Baghishani; Advisor: N. Eghbal. Completed.

- 38 **Rahim Kheirgoo** (2014). Approximating Posterior Distributions by Using Edgeworth Expansion and Stein's Identity. Supervisor: H. Baghishani; Advisor: N. Eghbal. Completed.
- 39 **Sahar Rafiey Dehbaneh** (2013). Innovations Time Series with Non-Gaussian and Applications. Supervisor: A. Nezakati Rezazadeh; Advisor: H. Baghishani (with M. A. Molaei). Completed.
- 40 **Ehsan Eshaghi** (2013). Semiparametric Survival Models for Recurrent Event Data by Kernel Method. Supervisors: D. Shahsavani and H. Baghishani. Completed.
- 41 **Maryam Moghaddam** (2013). Spatial Outlier Detection. Supervisors: D. Shahsavani and M. Koneshloo; Advisor: H. Baghishani. Completed.
- 42 **Miaad Valipur Pashakolaei** (2013). Beta Regression for Modeling Rates and Proportions Data. Supervisor: H. Baghishani; Advisor: M. Arashi. Completed.
- 43 **Seyyed Aliasghar Tajaddod** (2012). Shrinkage Estimation in Multivariate Models. Supervisor: M. Arashi; Advisor: H. Baghishani. Completed.

Teaching Experience

Courses Taught

- Mathematical Statistics I & II
- Computational Statistics
- Statistical Multivariate Methods I & II
- Categorical Data Analysis
- Introduction to R Programming
- Regression Analysis
- Time Series Analysis
- Numerical Methods and Simulation in Statistics
- Nonparametric Methods
- Experimental Design and Analysis I & II
- Statistical Methods
- Probability Foundations
- Introductory Statistics
- Applied Statistics and Probability for Engineers
- Applied Statistics and Probability for Mathematicians
- Statistics and Its Applications in Management I & II
- Statistics for Economists I & II
- Statistics for Earth Sciences
- Advanced Statistical Computing (M.Sc.)
- Statistical Inference I & II (M.Sc.)
- Statistical Techniques (M.Sc.)
- Advanced Topics in Applied Statistics (Ph.D.)

- Advanced Topics in Statistical Inference (Ph.D.)
- Advanced Statistical Inference (Ph.D.)
- Spatial Stochastic Processes (Ph.D.)

Workshops Held

- 1 **Bayesian Inference by using Integrated Nested Laplace Approximation (INLA).** Shahrood University of Technology, October 2017, Shahrood, Iran.
- 2 **Bayesian Inference by using OpenBUGS for Biostatisticians.** Mashhad University of Medical Sciences, December 2017, Mashhad, Iran.
- 3 **Bayesian Inference by using OpenBUGS for Biostatisticians.** Mazandaran University of Medical Sciences, November 2018, Sari, Iran.

Talks & Posters

Contributed Talks

- 1 Comparison of Poisson and negative binomial models on insurance data. *7th Iranian International Statistics Conference*, Allameh Tabataba'i University, Tehran, Iran, 2004.
- 2 A data cloning algorithm for computing maximum likelihood estimates in spatial generalized linear mixed models. *23rd Nordic Conference on Mathematical Statistics (NORDSTAT 2010)*, Voss, Norway, 2010.
- 3 Bayesian inference in state space models for count responses using an augmented approach. *11th Iranian Statistical Conference*, Tehran, Iran, 2012.
- 4 Approximate Bayesian inference in spatial beta regression models. *12th Iranian Statistical Conference*, Kermanshah, Iran, 2014.
- 5 Bayesian analysis of geostatistical data with gamma count regression. *13th Iranian Statistical Conference*, Kerman, Iran, 2016.
- 6 Regression: the king of statistical modeling. Research Week at Mazandaran University, Babolsar, Iran, December 2016.
- 7 Spatial analysis of crime rate in Tehran. *2nd Seminar on Spatial Statistics and Its Applications*, Shahrood, Iran, 2017.
- 8 Approximate Bayesian inference with mismatched socks. Shahrood University of Technology, Shahrood, Iran, May 2017.
- 9 Regression: the king of statistical modeling. National Statistics and Planning Day at Golestan University, Gorgan, Iran, November 2018.
- 10 Spatial distribution regression with semi-heavy tails. *3rd Seminar on Spatial Statistics and Its Applications*, Zanzan, Iran, 2019.
- 11 Disease mapping with a flexible Poisson model. *15th Iranian Statistical Conference*, Yazd, Iran, 2020.
- 12 Bayesian machine: peaks and valleys. 24th Webinar of the Iranian Statistical Society Webinar Series, June 2021.

- 13 Joint modeling of spatial dependence, zero-inflation, and under/over-dispersion of count responses. *16th Iranian Statistical Conference*, Babolsar, Iran, 2022.
- 14 A non-confounded spatio-temporal count model for analysis of wet-day frequency data. *6th Seminar on Spatial Statistics and Its Applications*, Semnan University, Iran, 2025.
- 15 The magic of statistics in the age of data. Statistics and Planning Day and Mathematics Decade, Shahrood University of Technology, Shahrood, Iran, November 2025.

Posters

- 1 Poisson GLARMA Models in Time Series. *5th Probability and Stochastic Process Conference*, University of Birjand, Birjand, Iran, 2005.
- 2 MCEM Algorithm. *9th Iranian International Statistics Conference*, University of Isfahan, Isfahan, Iran, 2007.