Forough Fazeliasl

Curriculum Vitae, November, 2024

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Academic Position

2024–Current **Post-doctoral Fellow in deep learning**, Department of Mathematical and Statistical Sciences, University of Alberta, Canada.

- **Supervisors:** Dr. Bei Jiang & Dr. Linglong Kong

2022–2024 **Post-doctoral Fellow in Artificial Intelligence**, Department of Statistics and Actuarial Science, University of Hong Kong, Hong Kong.

- **Supervisor:** Dr. Michael Minyi Zhang

Education

2017–2021 **Ph.D. in Statistics**, Isfahan University of Technology, Department of Mathematical Sciences, Isfahan, Iran

- **Thesis Title:** "*Bayesian Analysis of Multivariate Nonparametric Tests*"
- **Supervisor:** Dr. Zahra Saberi
- **Advisor:** Dr. Luai Al-Labadi
- **Thesis Grade:** Excellent

2015–2017 **M.Sc. in Statistics**, Isfahan University of Technology, Department of Mathematical Sciences, Isfahan, Iran

- **Thesis Title:** "*Bayesian Nonparametric Hypothesis Testing*"
- **Supervisor:** Dr. Zahra Saberi
- **Advisor:** Dr. Afshin Parvardeh
- **Thesis Grade:** Excellent

2011–2015 **B.Sc. in Statistics**, University of Kashan, Department of Statistics and Applications, Kashan, Iran

Areas of Interest

- **Bayesian Analysis**
- **Bayesian Nonparametric Methods**
- **Model Checking and Hypothesis Testing Problems**
- **Entropy and Information Theory**
- **Multivariate Analysis**
- **Machine/Deep Learning Problems/Data Science**
- **Fairness and Data Privacy**

- **Generative Models**
- **Adversarial Neural Networks**
- **Variational Inferences**

Journal Reviewer

- Journal of Machine Learning Research
- Sao Paulo Journal of Mathematical Sciences

Honors & Awards

- Achieving the first rank of the grade average of the courses passed among the graduates of statistics of the same period in the B.Sc.
- Achieving the first rank of the grade average of the courses passed among the graduates of statistics of the same period in the M.Sc.
- The only student accepted among the applicants for the doctoral program in statistics of the Isfahan University of Technology in 2017.
- Achieve maximum grades in courses of Ph.D. among all students who took these courses together at the same time.

Publications

- **Fazeli Asl, F.**, Zhang, M. M., and Lin, L. (2024). A semi-Bayesian nonparametric estimator of the maximum mean discrepancy measure: Applications in goodness-of-fit testing and generative adversarial networks. *Transaction on Machine Learning Research*, ISSN: 2835-8856. https://openreview.net/forum?id=lUnlHS1FYT.
- **Fazeli Asl, F.**, Zhang, M. M., and Lin, L. (2024). Bayesian nonparametric learning using the maximum mean discrepancy measure for synthetic data generation. *In NeurIPS 2024 Workshop on Bayesian Decision-making and Uncertainty*. https://openreview.net/pdf?id=bXAR2BOFJJ.
- Al-Labadi, L., **Fazeli-Asl, F.**, and Ly, A. (2024). Evaluating model fit for type II censored data: a Bayesian non-parametric approach based on the Kullback-Leibler divergence estimation. *Communications in Statistics-Simulation and Computation*, 1-15. https://doi.org/10.1080/03610918.2024.2417808.
- Al-Labadi, L., Cheng, Y., **Fazeli Asl, F.**, Lim, K., and Weng, Y. (2022). A Bayesian one-sample test for proportion. *Stats*, 5(4), 1242–1253. https://doi.org/10.3390/stats5040075.
- Al-Labadi, L., **Fazeli Asl, F.**, and Lim, K. (2022). On Bayesian Hotelling's T^2 test for the mean, *Communications in Statistics - Simulation and Computation*, https://doi.org/10.1080/03610918.2022.2155306.
- Al-Labadi, L., **Fazeli Asl, F.** (2022). On robustness of the relative belief ratio and the strength of its evidence with respect to the geometric contamination prior, *Journal of the Korean Statistical Society*, 51, 961–975, https://doi.org/10.1007/s42952-022-00170-8.

- Al-Labadi, L., **Fazeli Asl, F.**, and Saberi, Z. (2022). A Bayesian nonparametric multi-sample test in any dimension, *AStA Advances in Statistical Analysis*, 106, 217–242, https://doi.org/10.1007/s10182-021-00419-3.
- Al-Labadi, L., **Fazeli Asl, F.**, and Saberi, Z. (2021). A test for independence via Bayesian nonparametric estimation of mutual information, *Canadian Journal of Statistics*, 50(30), 1047–1070, https://doi.org/10.1002/cjs.11645.
- Al-Labadi, L., **Fazeli Asl, F.**, and Saberi, Z. (2021). A Bayesian semiparametric Gaussian copula approach to a multivariate normality test, *Journal of Statistical Computation and Simulation*, 91(3), 543–563, https://doi.org/10.1080/00949655.2020.1820504.
- Al-Labadi, L., **Fazeli Asl, F.**, and Saberi, Z. (2021). A necessary Bayesian nonparametric test for assessing multivariate normality, *Mathematical Methods of Statistics*, 30, 64–81, https://doi.org/10.3103/S1066530721030029.
- Al-Labadi, L., **Fazeli Asl, F.**, and Wang, C. (2021). Measuring Bayesian robustness using Rényi divergence, *Stats*, 4(2), 251–268, https://doi.org/10.3390/stats4020018.

Submitted Papers

- **Fazeli Asl, F.**, Zhang, M. M. (2023). A Bayesian Non-parametric Approach to Generative Models: Integrating Variational Autoencoder and Generative Adversarial Networks using Wasserstein and Maximum Mean Discrepancy, *Under revision at the Journal of Machine Learning Research (JMLR) for one and a half years.* arXiv preprint arXiv:2308.14048.
- **Fazeli Asl, F.**, Zhang, M. M., Jiang, B., Kong, L. (2024). A Deep Bayesian Nonparametric Estimator of Mutual Information, *Submitted to the Journal of the American Statistical Association (JASA)*

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Presentations In Conferences And Seminars

2025 June **A Deep Bayesian Nonparametric Estimator of Mutual Information**, 14th International Conference on Bayesian Nonparametrics, University of California, Los Angeles (UCLA), USA, https://bnp14.org/., **(Invited talk).**

2024 December **Bayesian nonparametric learning using the maximum mean discrepancy measure for synthetic data generation**, NeurIPS 2024, The 38th Annual Conference on Neural Information Processing Systems, Vancouver, Canada, https://openreview.net/group?id=NeurIPS.cc/2024/Workshop/BDU., **(Workshop on Bayesian Decision-making and Uncertainty).**

2024 September **Bayesian nonparametric data generation via push-forward measures**, The 44th Annual Meeting of Alberta Statisticians, University of Calgary, Canada, https://sites.google.com/view/abstats/home?authuser=0., **(Invited talk).**

2024 August **A semi-Bayesian nonparametric estimator of the maximum mean discrepancy measure: Applications in goodness-of-fit testing and generative adversarial networks**, Bernoulli-IMS (Institute of Mathematical Statistics), The 11th World Congress in Probability and Statistics 2024, Ruhr University Bochum, Germany, https://www.conftool.com/bernoulli-ims-worldcongress-2024/index.php?page=browseSessions&form_session=25., **(Contributed talk).**

2024 July **A Bayesian non-parametric approach: Integrating variational auto encoders and generative adversarial networks using Wasserstein and maximum mean discrepancy measure**, EcoSta 2024, The 7th International Conference on Econometrics and Statistics, Beijing Normal University, China, https://www.cmstatistics.org/EcoSta2024/programme.php., **(Invited talk).**

2023 November **Goodness-of-Fit test using Bayesian non-parametric methods and maximum mean discrepancy measure**, BAYSM 2023, the official conference of J-ISBA, University of Connecticut, https://events.stat.uconn.edu/BAYSM2023/.

2023 **Training generative adversarial networks from a Bayesian non-parametric perspective**, EAC-ISBA 2023 Conference, School of Mathematics and Statistics, Qingdao University, China, http://bayesianorg.com/.

2020 **A Bayesian nonparametric entropy estimation via Pólya tree prior**, The 4th Seminar on Information Theory and its Applications, Isfahan, Iran.

2018 **A study on the estimation of reliability function in coherent system by using Pólya tree prior**, The 14th Iranian Statistics Conference, Shahrood, Iran.

2017 **Bayesian nonparametric goodness of fit test for survival data**, The 3rd Seminar on Reliability Theory and its Applications, Mashhad, Iran.

2017 **Dirichlet process and application on the hypothesis testing**, The 11th Seminar on Probability and Stochastic Process, Ghazvin, Iran.

Teaching Experiences

2025: Upcoming Spring **Teaching**, A statistics course will be taught based on departmental preference, University of Alberta, Canada

2025: Upcoming Summer **Teaching**, A statistics course will be taught based on departmental preference, University of Alberta, Canada

2022-2023: Winter-Spring **Tutor (teach in English)**, Practical Mathematics for Investment, University of Hong Kong, Hong Kong

2022-2023: Fall-Winter **Tutor (teach in English)**, Current Topics in Risk Management, University of Hong Kong, Hong Kong

2021-2022 **Teaching (50% co-teaching)**, Statistical Computations, Isfahan University of Technology, Iran

- Note: During the years 2020-2022 at Isfahan University of Technology, courses were taught online due to Covid-19.

2019 **Teaching (20% co-teaching)**, Nonparametric Methods, Isfahan University of Technology, Iran

2018-2019 **Teaching Assistant**, Engineering Statistics and Probability, Isfahan University of Technology, Iran

2018 **Teaching Assistant**, Nonparametric Methods, Isfahan University of Technology, Iran

2017-2020 **Teaching Assistant**, Probability and Statistics, Isfahan University of Technology, Iran

2016-2021 **Teaching Assistant**, Mathematical Statistics I & II, Isfahan University of Technology, Iran

Computer Skills

Languages
- **Python**
- **R**
- **Matlab**

Software
- **Minitab**
- **Maple**
- **S-Plus**
- **SPSS**
- **LaTeX**
- **Microsof Office**

Languages

- **English**
- **Persian** (native)

Relevant Links

- ORCID: https://orcid.org/0000-0001-5885-0946
- Google Scholar: https://scholar.google.com/citations?user=x8w4k_EAAAAJ&hl=en&oi=ao

References

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- **Dr. Michael Minyi Zhang**
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- **Prof. Linglong Kong**
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- **Prof. Bei Jiang**
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- **Dr. Olivia T.K. CHOI (She can speak to teaching capabilities)**
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  University of Hong Kong
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