KAZI TANVIR HASAN

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SUMMARY

Postdoctoral Associate in Psychiatry at Yale School of Medicine with expertise in biostatistics, Bayesian modeling, and large-scale data analytics. Experienced in genetically informed research on psychiatric and substance use disorders using complex RWE datasets, including MVP and UK Biobank. Skilled in advanced statistical modeling, machine learning, and high-dimensional genomic (GWAS, PheWAS, Mendelian randomization, Polygenic risk scores and Genomic SEM) and environmental exposure analysis. Current work includes developing scalable statistical, and machine-learning methods for modeling complex, high-dimensional data, building statistical software packages, and performing longitudinal analyses to detect risk trajectories and inform predictive modeling.

Proven experience in secure data pipeline management, cross-functional collaboration, and reproducible research workflows. Strong track record of scientific communication, software development (R packaging), mentoring, and contributing to grant and project proposals. Well-prepared to translate statistical insights into actionable solutions across biomedical, clinical research, and data-driven environments.

TECHNICAL SKILLS

Programming Languages: R, Python, SAS, SQL
Reproducible Report: Quarto, Markdown/Rmarkdown, R Shiny, Jupyter Notebook
DevOps: Git, GitHub
Cloud Computing: HPC, AWS, Linux

PROFESSIONAL EXPERIENCE

Postdoctoral Associate, Department of Psychiatry Yale University, New Haven, CT: July 2025 – Present

- Lead genetically informed studies of substance use disorders (SUDs), psychiatric conditions, and behavioral/lifestyle determinants of human health.
- Analyze large-scale biobank datasets, including MVP and UK Biobank.
- Apply statistical (frequentist and Bayesian) models and machine learning approaches to genomic datasets.
- Collaborate with multidisciplinary research teams across genetics, psychiatry, and data science.
- Manage end-to-end data pipelines while ensuring privacy protections and HIPAA compliance.
- Mentor junior researchers and contribute to grant proposals and peer-reviewed publications.

Graduate Assistant, Dept. of Biostatistics, Florida International University, Miami, FL: August 2021 – August 2025

- Conducted statistical analyses for NIH-funded projects, integrating Bayesian modeling.
- Developed and executed analytical strategies for high-throughput sequencing data, including RNA-seq, using tools like Seurat and DESeq2, resulting in the identification of key biological insights and pathways.
- Coauthored manuscripts and presentations on heavy metal exposure.
- Assisted professors in preparing and delivering statistics and data analysis course materials.

Summer Intern - CPP, Johnson & Johnson, Spring House, PA: May 2024 – August 2024

- Developed computational tools for modeling and simulation applications.
- Supported drug development across preclinical and clinical stages through cross-disciplinary collaboration.
- Conducted literature reviews on pharmacokinetics, oncology biomarkers, and clinical trial data.
- Assisted in analyzing clinical trial data and informed decision-making with advanced modeling techniques.

Instructor Assistant, RCMI Morehouse School of Medicine, Atlanta, GA: February 2023 – May 2023

- Conducted a 10-week national series on R programming using a modified Data Carpentry curriculum.

Research Assistant, Dept. of Disaster Science, University of Dhaka, Dhaka, Bangladesh: January 2021 – July 2021

- Developed data-visualization dashboards for public-health impact studies.
- Contributed statistical expertise to climate-related health risk assessments.

Graduate Teaching Assistant, Dept. of Mathematics, Illinois State University, Normal, IL: August 2018 – May 2020

- Developed instructional resources and facilitated study sessions to improve student comprehension.
- Graded assignments and offered constructive feedback to improve performance.
- Coordinated tutoring sessions and academic support workshops with faculty.

EDUCATION

PhD in Public Health (Biostatistics and Data Analytics) August 2025
Department of Biostatistics
Florida International University, Miami, FL, USA

MS in Mathematics (Applied Statistics) May 2020
Department of Mathematics
Illinois State University, Normal, IL, USA

BS (Hons) in Statistics July 2017
Department of Statistics
University of Dhaka, Dhaka, Bangladesh

PUBLICATIONS

1. **Tanvir Hasan, K.**, Odom, G., Bursac, Z., Ibrahimou, B. (2025). The sensitivity of Bayesian kernel machine regression (BKMR) to data distribution: a comprehensive simulation analysis. Journal of Statistical Computation and Simulation, 1–20. https://doi.org/10.1080/00949655.2025.2608780.
2. **Kazi Tanvir Hasan.** Olcay Akman. "Mortality Modeling Under Stochastic Frailty." Missouri J. Math. Sci. 33 (1) 105 - 118, May 2021. https://doi.org/10.35834/2021/3301105.
3. Ahamed, H., **Hasan, K. T.**, Islam, M. T., Galib, F. C. (2020). Lockdown policy dilemma: COVID-19 pandemic versus economy and mental health. Journal of Biomedical Analytics, 3(2), 37-58.

SOFTWARE DEVELOPMENT

1. **Hasan, K. T.**, Boubakari, I., Cristian, G., Bursac, Z., Lucchini, R., Odom, G. (2025). simBKMRdata: Helper functions for Bayesian Kernel Machine Regression. R package version 0.2.1. https://doi.org/10.32614/CRAN.package.simBKMRdata.

PREPRINTS & IN-PROGRESS MANUSCRIPTS

1. **Hasan, K. T.**, Odom, G., Bursac, Z., & Ibrahimou, B. (2024). The sensitivity of Bayesian kernel machine regression (BKMR) to data distribution: A comprehensive simulation analysis. arXivPreprint. https://doi.org/10.48550/arXiv.2411.00286.
2. Ibrahimou, B, **Hasan, K. T.**, Burchfield, S., Salihu, H., Zhu, Y., Dagne, G., De La Rosa, M., Melesse, A., Lucchini, R., Bursac, Z. . (2024). Assessing the risk of heart attack: A Bayesian kernel machine regression analysis of heavy metal mixtures. Res Sq Preprint. https://doi.org/10.21203/rs.3.rs-4456611/v1.

CONFERENCE PRESENTATIONS

1. Hasan, K. T., Ibrahimou, B., Odom, G. (2025). Adaptive Thresholding in Bayesian Kernel Machine Regression: Improving Sensitivity and Reliability, 2025 Joint Statistical Meeting, Nashville, Tennessee, USA.
2. Hasan, K. T., Ibrahimou, B., Odom, G. (2024). The Sensitivity of Bayesian Kernel Machine Regression (BKMR) to Data Distribution, 2024 Joint Statistical Meeting, Portland, Oregon, USA.
3. Hasan, K. T., Ibrahimou, B., Odom, G. (2023). Impact of heavy metal mixtures on cognitive decline and Alzheimer's disease and related dementias (ADRD), 2023 Joint Statistical Meeting, Toronto, Ontario, Canada.
4. Hasan, K. T., Ibrahimou, B., Burchfield, S. (2022). A Bayesian kernel machine regression approach to assessing the effect of heavy metal mixtures in blood and urine on the risk of heart attack. 2022 Joint Statistical Meeting, Washington DC, USA.

HONORS & AWARDS

Graduate Assistantship 2021–2025
Florida International University

Multiple Travel Scholarships 2022–2025
FIU Robert Stempel College of Public Health & Social Work, GPSC

Graduate Teaching Assistantship 2018–2020
Illinois State University

REFERENCES

References available upon request.