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Md Tuhin Sheikh

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Education

University of Connecticut (UConn), Storrs, Connecticut
Ph.D. in Statistics — 2017 – 2022
◇ Advisor: Professor Ming-Hui Chen

University of Dhaka, Dhaka, Bangladesh
M.S., Applied Statistics — 2014
B.S., Applied Statistics — 2013

Employment

Assistant Professor (Tenure-Track) — Aug 2024 – Present
Biostatistics, College of Health Solutions, Arizona State University, Phoenix, AZ

Postdoctoral Associate — 2022 – 2024
Department of Biostatistics, Yale University, New Haven, CT
◇ Advisor: Professor Hongyu Zhao

Teaching and Research Assistant — 2017 – 2022
Department of Statistics, University of Connecticut, Storrs, CT

Biostatistics and Data Science Intern — Summer 2020
Boehringer Ingelheim, Ridgefield, CT

Lecturer — 2015 – 2017
Department of Applied Statistics, University of Dhaka, Bangladesh

Research Interests

◇ Competing risks and semicompeting risks survival data analysis, longitudinal data analysis, joint modeling of longitudinal and survival data, and cure rate model.

◇ Bayesian inference, Bayesian computation, model assessment tools, data integration, and interim analysis in clinical trials.

◇ UK Biobank, All of Us, electronic health records, cancer disease, type 2 diabetes, statistical genomics, microbiome data for premature babies and inflammatory bowel disease.

Research Publications

1. **Sheikh, M. T.**, and Zhao, H. (2025). A Semicompeting Risks Model with an Application to UK Biobank Data to Identify Risk Factors for Diabetes Onset and Progression. *Biometrics (accepted)*
2. **Sheikh, M. T.**, Gelfond, J. A., and Chen, M. H. (2024). Bayesian Joint Model for Longitudinal Biomarker and Competing Risks of Prostate Cancer with Cure Fraction, Accounting for Masked Causes. *Manuscript*
3. Menger, A., **Sheikh, M. T.**, and Chen, M. H. (2024). Joint Modeling of Longitudinal and Competing Risks Survival Data with Cure Fractions and Masked Causes. *In preparation*

4. Menger, A., **Sheikh, M. T.**, and Chen, M. H. (2024). Bayesian Modeling of Survival Data in the Presence of Competing Risks with Cure Fractions and Masked Causes. *Sankhya A*
5. **Sheikh, M. T.**, Chen, M. H., Gelfond, J. A., Sun, Wei, and Ibrahim, J. G. (2023). New Bayesian C-indices for Assessing Importance of Longitudinal Biomarkers in Fitting Competing Risks Survival Data in the Presence of Partially Masked Causes. *Statistics in Medicine*, 42(9): 1308–1322. [*Received the IBM Student Research Award at NESS 2021*]
6. **Sheikh, M. T.**, Chen, M. H., Gelfond, J. A., and Ibrahim, J. G. (2022). A Power Prior Approach for Leveraging External Longitudinal and Competing Risks Survival Data within the Joint Modeling Framework. *Statistics in Biosciences*, 14: 318-336.
7. **Sheikh, M. T.**, Ibrahim, J. G., Gelfond, J. A., Sun, Wei, and Chen, M. H. (2021). Joint Modeling of Longitudinal and Survival Data in the Presence of Competing Risks with Applications to Prostate Cancer Data. *Statistical Modelling*, 21(1–2): 72-94.
8. Khan, J. R., Awan, N., and **Sheikh, M. T.** (2019). A Multilevel and Spatial Analysis of the Infant and Young Child Feeding Practices and Associated Factors among the Under-2 Aged Children in Bangladesh. *Child Care in Practice*, 28(2): 178-195.
9. Kahn, J. R., **Sheikh, M. T.**, and Muurlink, O. (2019). Breastfeeding Termination and its Determinants in Bangladesh: Current Status Data Modeling. *Early Child Development and Care*, 190(16): 2594–2604.
10. Kahn, J. R., Biswas, R. K., **Sheikh, M. T.**, and Huq, M. (2019). Factors Associated with the Availability of Iodized Salt at Household Level: A Case Study in Bangladesh. *Public Health Nutrition*, 22(10): 1815-1823.
11. **Sheikh, M. T.**, Uddin, M. N., and Khan, J. R. (2017). A Comprehensive Analysis of Trends and Determinants of HIV/AIDS Knowledge among the Bangladeshi Women based on Bangladesh Demographic and Health Surveys, 2007–2014. *Archives of Public Health*, 75(59): 1–11.

Conference Talks / Presentation

1. "Bayesian Joint Model for Longitudinal Biomarker and Competing Risks of Prostate Cancer with Cure Fraction, Accounting for Masked Causes", ENAR 2025, Mar 23–26, 2025.
2. "Methods for exploring prostate cancer risk due to multiple causes and longitudinal biomarkers in the presence of unknown causes", CHS Innovation Talk, Nov 14, 2024.
3. "Bayesian Joint Model for Longitudinal Biomarker and Competing Risks of Prostate Cancer with Cure Fraction, Accounting for Masked Causes", NESS 2024, May 20–24, 2024.
4. "A Semicompeting Risks Model with an Application to UK Biobank Data to Identify Risk Factors for Diabetes Onset and Progression", ENAR 2024, Mar 10–13, 2024.
5. "New Bayesian C-indices for Assessing Importance of Longitudinal Biomarkers in Fitting Competing Risks Survival Data in the Presence of Partially Masked Causes", ENAR 2022, Mar 27–30, 2022.
6. "A Power Prior Approach for Leveraging External Longitudinal and Competing Risks Survival Data within the Joint Modeling Framework", Speed Poster Presentation 1, EAC-ISBA 2021 Meeting, November 16–18, 2021.

7. "New Bayesian C-indices for Assessing Importance of Longitudinal Biomarkers in Fitting Competing Risks Survival Data in the Presence of Partially Masked Causes", Munich Re / HSB Student Poster Award: Speed Poster Presentation 1, NESS 2021, Sep 30–Oct 2, 2021.
8. "A Power Prior Approach for Leveraging External Longitudinal and Competing Risks Survival Data within the Joint Modeling Framework", Session C14, ISBA 2021 Virtual Meeting, June 23–July 2, 2021.
9. "Joint Modelling of Longitudinal and Survival Data in the Presence of Competing Risks with Applications to Prostate Cancer Data", Session 96c, ENAR 2021 Virtual Spring Meeting, March 14–17, 2021.
10. "Optimized Interim Futility Decision Making for Early Phase Clinical Trials with Binary Endpoint using Bayesian Predictive Probability of Failure", Biostatistics and Data Science Intern Presentation, Boehringer Ingelheim, August 10, 2020.
11. "A comprehensive analysis of trends and determinants of HIV/AIDS knowledge among the Bangladeshi women based on Bangladesh Demographic and Health Surveys, 2007–2014", Symposium on Data Science & Statistics 2018, May 16–19, 2018, in Reston, Virginia.
12. "Joint Modeling of Longitudinal and Survival Outcomes with an Application to Diabetes Data", Contributed Session 5 (P97), International Conference on Applied Statistics (ICAS), 27–29 December, 2014, Dhaka, Bangladesh.

Teaching Experience

Biostatistics, Arizona State University

- ◇ BST 606 Applied Clinical Trial Design and Analysis (Spring 2025).
- ◇ BST 601 Biostatistical Theory and Inference (Fall 2025).

Department of Statistics, University of Connecticut

- ◇ STAT 3375: Introduction to Mathematical Statistics I (Fall 2019, Fall 2020 – Spring 2021).
- ◇ STAT 3345: Probability Models for Engineers (Fall 2021)
- ◇ STAT 3115: Analysis of Experiments (Fall 2017, Spring 2018).
- ◇ STAT 3025: Statistical Methods (Fall 2017).
- ◇ STAT 1100: Elementary Concepts of Statistics (Fall 2017 – 2018, Spring 2021).

Applied Statistics, University of Dhaka

- ◇ AST 103: Programming with C (2016 – 2017).
- ◇ AST 402: Statistical Inference II (2017).
- ◇ AST 406: Industrial Statistics and Operations Research (2016).

Guest Lecturer

Department of Statistics, University of Connecticut

- ◇ Guest lecture in "STAT 5645: Analysis of Survival Data" for Fall 2019.

  Topic: *"Survival Analysis: into the era of Machine Learning"* (slides).
- ◇ Guest lecture in "STAT 5615: Categorical Data Analysis" for Spring 2020.

Topic: *"RShiny Tutorial"*. Lecture materials: RShinyTutorial.

◇ Guest lecture in "STAT 5615: Categorical Data Analysis" for Spring 2020.

Topic: *"Logistic Regression within Deep Learning Framework using R"*.

Workshop Instructor

◇ I have conducted a workshop (codes, slides, video) on *"Introduction to R"* at the UConn Sports Analytics Symposium 2021 on Oct 10, 2021.

◇ Conducted a virtual workshop on *"An Introduction to R Shiny App"*, organized by ISRT, University of Dhaka, on April 10, 2021.

◇ Conducted a workshop on "Introduction to R" as part of the UConn Data Science Club on Feb 24 and Oct 15, 2021.

◇ I have conducted an R workshop (codes, slides, video) at the UConn Sports Analytics Symposium 2020 on Oct 10, 2020.

◇ Conducted a workshop on *"Introduction to Deep Neural Network using R"*, organized by ISRT, University of Dhaka, on July 28, 2020.

◇ Conducted a workshop on *"Introduction to R"* as part of the UConn Sports Analytics Symposium 2019. All the workshop materials are available at the link.

Advising and Mentoring

Applied Statistics, University of Dhaka, Dhaka 1000, Bangladesh

Master's Project Supervised

◇ A. M. Azharul Islam (M.S. Project, 2015). Risk Factors of Cardiovascular Heart Disease in Type 2 Diabetes in Bangladesh.

Undergraduate Project Supervised

◇ Mohsina Akanda Tusty (B.S. Project, 2017). Factors Associated with Misconceptions about HIV/AIDS Transmission among the Ever-Married Women in Bangladesh.

◇ Md. Shahbaz Alam (B.S. Project, 2017). A Comparative Study of Histogram Equalization Based Image Enhancement Techniques.

◇ Ishrak Muhommad Antik (B.S. Project, 2017). Factors associated with the GDP in Bangladesh.

◇ Md. Nizam Uddin (B.S. Project, 2016). Influence of Socio-demographic Factors on Awareness of AIDS among Women in Bangladesh. [journal paper link]

◇ Taj-E-Jannat Mim (B.S. Project, 2016). Image enhancement by local histogram specification with normal distribution.

Research Experience

- **NIH R01 Grant** (#HG012735), Yale, New Haven, CT Sep, 2022 – Present
  ◇ I have been working on a large-scale dataset from UK Biobank to study complex diseases, including type 2 diabetes (T2D). Particularly, I am developing a semicompeting risks model to explore the effects of various factors on distinct disease stages of T2D under the advisory of Professor Hongyu Zhao.

- **Energy-Stats Project**, UConn, Storrs, CT Jan, 2020 – Aug, 2022
  ◇ As a research assistant (RA), I contributed to the development of an R Shiny Dashboard to monitor the UConn campus-wide utility usage (electricity, natural gas) and improve anomaly detection, mentor: Professor Ming-Hui Chen.

- **NIH R01 Grant** (#GM 70335), UConn, Storrs, CT Jan, 2019 – Aug, 2022
  - ◇ We developed joint modeling of longitudinal and competing risks survival data in the presence of missing causes to explore the associations between longitudinal prostate-specific antigens and time-to-prostate cancer due to low-grade and high-grade.

- **Internship Project**, Boehringer Ingelheim (BI), Ridgefield, CT May – Aug, 2020
  - ◇ Project title: "Optimized Interim Futility Decision Making for Early Phase Clinical Trials with Binary Endpoint using Bayesian Predictive Probability of Failure", mentor: Dr. Miaomiao Ge. This project aimed to facilitate futility decisions in clinical trials.

- **SON-STAT Project**, UConn, Storrs, CT May – Aug, 2019; Jan – Aug, 2022
  - ◇ I worked on the gut microbiome data from premature babies to explore their genetic relationship with the demographic and clinical variables. I also worked on Irritable Bowel Disease (IBD) data to investigate the change in microbiome characteristics for IBD and healthy groups. Mentors: Professors Ming-Hui Chen and Xiaomei Cong.

- **K99/R00 Project**, UConn, Storrs, CT Jan, 2022 – Aug, 2022
  - ◇ As an RA, I worked with Dr. Mallory Perry, University of Pennsylvania, to determine the risk of physical dysfunction in critically ill children who survive severe sepsis.

- **NIH R01 Grant Proposal Assisted**

  SON-STAT, UConn, Storrs, CT Jan – May, 2020
  - ◇ Assisted on an R01 grant proposal by working on the sample size calculation and data visualization for a gut microbiome data under the mentors: Professor Ming-Hui Chen and Professor Wanli Xu.

  UNCCH-UConn, Storrs, CT Jan – May, Sep – Oct, 2020
  - ◇ I assisted on preparing an R01 grant proposal by contributing on formulating a specific aim, developing statistical methodology, and analyzing preliminary data.

Academic Services

- ◇ Member, Biostatistics Academic Committee, CHS, ASU (Fall 2024 – Present).
- ◇ Member, Biostatistics Ph.D. Admission Committee, CHS, ASU (Fall 2024 – Present).
- ◇ Member, Biostatistics M.S. Admission Committee, CHS, ASU (Fall 2024 – Present).
- ◇ Organizing Committee Volunteer, New England Statistical Society Symposium 2021.
- ◇ Organizing Committee Volunteer, 2021 World Meeting of the International Society for Bayesian Analysis.
- ◇ Volunteer of the UConn Summer Academy 2020.
- ◇ Event Coordinator, Tarang - a South Asian Graduate Student Association, UConn (2019–2020)
  - ◇ Host (YouTube link) at the "Diwali 2019" organized by Tarang, UConn.
- ◇ Technical Assistant, New England Statistical Society Symposium 2019.

Selected Awards

Department of Statistics, University of Connecticut (UConn)

- ◇ *Doctoral Dissertation Fellowship*, UConn (Summer 2022).
- ◇ *IBM Student Research Award*, New England Statistics Symposium (Oct, 2021).
- ◇ *ISBA 2022 Travel Award*, awarded by the International Society for Bayesian Analysis.
- ◇ *Trainers' Award*, UConn Sports Analytics Symposium 2019.
- ◇ *Excellence in Teaching Award*, UConn (2019).
- ◇ *UConn Provost's appreciation letter for excellence in teaching* (Spring 2018, Fall 2018, and Spring 2019).

Applied Statistics, University of Dhaka

- ◇ *First Prize in Young Statistician Award*, Second International Conference on Statistics 2015, for the paper titled "Effect of Longitudinal Blood Glucose Level on Diabetes Complications: A Joint Modelling Approach".
- ◇ *Dean's Award-2015*, Faculty of Science, University of Dhaka, awarded for an outstanding result of B.S. in Applied Statistics, 2013.
- ◇ *Certificate of Appreciation* for contribution as a *Teaching Fellow* in MPH 521: Biostatistics I, James P Grant School of Public Health, April 2015.
- ◇ *Certificate of Appreciation* for contribution as a *Teaching Fellow* in MPH 521: Biostatistics II, James P Grant School of Public Health, May 2015.
- ◇ *Talent Pool Scholarship*, awarded for the result of B.S. in Applied Statistics, 2013.
- ◇ *Merit scholarship* for the B.S. results, 2011, 2012, 2013, and 2014.
- ◇ *EBL-DUAA scholarship* for the B.S. 2nd (2012) and 3rd (2013) year results, awarded by Eastern Bank Limited (EBL) and University of Dhaka Alumni Association (DUAA).
- ◇ *Moulavi Ahmed Ullah Memorial Trust Fund Scholarship* for the B.S. 2nd year result, 2012.
- ◇ *Undergraduate Scholarship* for the B.S. 1st year result, 2011.

Reviewer

- ◇ Lifetime Data Analysis
- ◇ Statistical Methods in Medical Research
- ◇ New England Journal of Statistics in Data Science
- ◇ Journal of Applied Statistics
- ◇ Journal of Statistical Research
- ◇ Nature Communications
- ◇ Nature Methodology
- ◇ Scientific Reports
- ◇ BMC Research Methodology
- ◇ Human Genomics
- ◇ Archives of Public Health

- ◇ International Breastfeeding Journal
- ◇ African Health Science; Orthopedics and Rheumatology
- ◇ BMC Medical Informatics and Decision Making

Skills

Statistical software/language

- ◇ R, RShiny, Fortran, Python, C/C++, SAS, Matlab, Stata, Minitab, and SPSS.

Text formatting

- ◇ LaTeX, Microsoft Word, Microsoft Power point.

Certification

- ◇ "UConn Statistics Biopharmaceutical Summer Academy", August 06–August 24, 2018.
- ◇ "Introduction to Data Science using R" (Udemy, Certificate link).
- ◇ "Neural Networks and Deep Learning" (Coursera, Certificate link).
- ◇ "SAS Visual Data Mining and Machine Learning on SAS Viya: Interactive Machine Learning", organized by *Department of Statistics, UConn and SAS* May 14, 2019.

Professional Membership

Regular Member, International Society for Bayesian Analysis.
Regular Member, Eastern North American Region, International Biometric Society.
Regular Member, International Chinese Statistical Association.
Regular Member, American Statistical Association.
Regular Member, New England Statistical Society.
Life Member, Bangladesh Statistical Association.