

Mohammad Kamruzzaman, Ph.D.

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Current Position(s)

Assistant Professor of Computer Science and Data Science
School of Applied Computational Sciences
Meharry Medical College
Nashville, Tennessee

Education

Ph.D. Computer Science, Washington State University, Pullman, WA	2020
B.Sc. Computer Science and Engineering, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh	2009

Academic Appointments

Assistant Professor of Computer Science and Data Science School of Applied Computational Sciences Meharry Medical College Nashville, Tennessee	2026 - Present
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Postdoctoral Researcher Department of Computer Science University of Virginia Charlottesville, VA	2020 - 2023
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Graduate Research Assistant Department of Computer Science Washington State University Pullman, WA	2015 - 2020
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Teaching Assistant Department of Computer Science Washington State University Pullman, WA	2015 - 2017
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Professional Positions and Experience

Postdoctoral Researcher Department of Systems Biology Sandia National Laboratories Livermore, CA, USA	2023 - 2025
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Applied Scientist Intern Amazon Seattle, WA, USA	2019 - 2019
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Research Intern Pacific Northwest National Laboratories Richland, WA, USA	2018 - 2018
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Software Development Engineer
KBGroup
Dhaka, Bangladesh 2010 - 2015

Software Development Engineer
Nazim-corp Resource Gateway
Dhaka, Bangladesh 2009 - 2010

Professional Memberships and Activities

SIAM	2025
GRC	2024
TRICON	2024
PSB	2024
ACM-BCB	2016-2018

Educational Activities

- ☑ Assistant professor at Meharry Medical College:
 - MSDS 530: Statistical Inference and Modeling Spring 2026
 - Prepared syllabus, lecture contents, and delivered lectures
 - Maintained dedicated office hours, quizzes, and projects
 - Ensured a collaborative, engaging, and performance-focused classroom
- ☑ Teaching assistant at Washington State University: Fall 2015-2017
 - Served as a head TA for Verilog in the VLSI lab (EE214, Design of Logic Circuits). The primary objective is to help students complete the weekly projects, allocate office hours to clarify topics, grade exam papers on time, upload grades, and hold in-person performance discussions.
 - Suggested curriculum upgrade on VLSI, Theory of Computing, and Algorithms.

Honors and Awards

Innovation Award, Sandia National Laboratories	2024
CHAI (Community Health Analytics Initiatives) fellowship	2016-2017
BigLS (Big Data in Life Science) travel award for ACM-BCB Workshop	2016

Publications

Peer-Reviewed Journals

- J1. Kevin Yin, Alexander Landera, Namil Lee, Anthony T. Iavarone, Thomas D. Young, Kai Deng, Yan Chen, Jennifer W. Gin, Riley Benedict, Yan Chiu, Ezechinyere Ukabiala, **Methun Kamruzzaman**, Kunal Poorey, Trent R. Northen, ChristopherJ. Petzold, Anthe George, Pablo Cruz-Morales, Qingyun Dan, & Jay D. Keasling (2025). *Computationally-aided and polyketide synthase-based controlled synthesis of polycyclopropanated fuel molecules*. [under submission]
- J2. **Kamruzzaman, M.**, Landera, A., Menon, N. C., Allendorf, M. D., & Poorey, K. (2024). *P2MAT: A machine learning (ML) driven software for Property Prediction of MATerial*. [under submission]
- J3. **Kamruzzaman, M.**, Salinas, J. S., Kolla, H., Sale, K. L., Balakrishnan, U., & Poorey, K. (2025). *GenAI-Based Digital Twins Aided Data Augmentation Increases Accuracy in Real-Time Cokurtosis-Based Anomaly Detection of Wearable Data*. *Sensors*, 25(17), 5586.
- J4. Chowdhury, T. A., Izubuchi, T., **Kamruzzaman, M.**, Karthik, N., Khan, T., Liu, T., ... & Sufian, R. S. (2025). *Polarized and unpolarized gluon PDFs: Generative machine learning applications for lattice QCD matrix elements at short distance and large momentum*. *Physical Review D*, 111(7), 074509.

- J5. **Kamruzzaman, M.**, Heavey, J., Song, A., Bielskas, M., Bhattacharya, P., Madden, G., ... & Vullikanti, A. (2024). *Improving Risk Prediction of Methicillin-Resistant Staphylococcus aureus Using Machine Learning Methods With Network Features: Retrospective Development Study*. JMIR AI, 3(1), e48067.
- J6. Cui, J., Cho1, S., **Kamruzzaman, M.**, Bielskas, M., Vullikanti, A., Prakash, B.A. (2023) *Using spectral characterization to identify healthcare-associated infection (HAI) patients for clinical contact precaution*. Scientific Reports, 13(1), 16197
- J7. **Kamruzzaman, M.**, Bielskas, M., Krishnamoorthy, B., Marathe, A., Vullikanti, A., & Kalyanaraman, A. (2021). *Navigating the COVID-19 Data Landscape: Automated Hypothesis Generation using Topological Data Analysis*. BMC Medical Informatics and Decision Making.
- J8. Madden, G., Bielskas, M., **Kamruzzaman, M.**, Bhattacharya, P., Lewis, B., Klein, E., Sifri, C. & Vullikanti, A. (2021). 173. *Deciphering COVID-19-Associated Effects on Hospital MRSA Transmission and Social Networks*. In Open Forum Infectious Diseases (Vol. 8, No. Supplement 1, pp. S104 – S106).
- J9. Sadilek, A., Liu, L., Nguyen, D., **Kamruzzaman, M.**, Serghiou, S., Rader, B., Ingerman, A., Mellem, S., Kairouz, P., Nsoesie, E.O. & MacFarlane, J. (2021). *Privacy-first health research with federated learning*. NPJ digital medicine, 4(1), 1 – 8.
- J10. **Kamruzzaman, M.**, Kalyanaraman, A., Krishnamoorthy, B., Hey, S. & Schnable, P.S. *Hyppo-X: A Scalable Exploratory Framework for Analyzing Complex Phenomics Data*. IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB'19)
- J11. Kalyanaraman, A., **Kamruzzaman, M.**, Krishnamoorthy, B. *Interesting paths in Mapper Complex*. Journal of Computational Geometry, 2019, vol. 10, No. 1, DOI: 10.20382/jocg.v10i1a17(author order: alphabetical)

Conference/Workshop Proceedings

- C1. Rituparna Datta, **Methun Kamruzzaman**, Eili Y. Klein, Gregory R Madden, Xinwei Deng, Anil Vullikanti, Parantapa Bhattacharya (2024) *Prediction of Hospital Associated Infections During Continuous Hospital Stays*. [Under submission]
- C2. Zhang, X., Nguyen, D., **Kamruzzaman, M.**, Bhattacharya, P., Cadena, J., Deng, X., Vullikanti, A. (2024) *Classification with Rejection for Data Imbalance and Fairness*. [Under submission]
- C3. Jang, H., Fu, A., Cui, J., **Kamruzzaman, M.**, Prakash, B. A., Vullikanti, A., ... & Pemmaraju, S. V. (2023, June). *Detecting sources of healthcare associated infections*. In Proceedings of the AAAI Conference on Artificial Intelligence (Vol. 37, No. 4, pp. 4347-4355).
- C4. Zhou, Y., **Kamruzzaman, M.**, Schnable, P., Krishnamoorthy, B., Kalyanaraman, A. & Wang, B. (2021). *Pheno-Mapper: an interactive toolbox for the visual exploration of phenomics data*. In Proceedings of the 12th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (pp. 1 – 10).
- C5. Madhobi, K.F., **Kamruzzaman, M.**, Kalyanaraman, A., Lofgren, E., Moehring, R. & Krishnamoorthy, B. *A Visual Analytics Framework for Analysis of Patient Trajectories*. Proc. ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACMBCB'19), 10 pages, 2019. DOI: 10.1145/3307339.3342143.
- C6. **Kamruzzaman, M.**, Kalyanaraman, A., Krishnamoorthy, B. *Detecting divergent subpopulations in phenomics data using interesting flares*. Proc. ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB'18), pp.155-164, 2018. DOI:10.1145/3233547.3233593

Published Abstracts and Presentations

- A1. **Kamruzzaman, M.**, Kalyanaraman, A., & Krishnamoorthy, B. (2016, October). Characterizing the role of environment on phenotypic traits using topological data analysis. In Proceedings of the 7th ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics (pp. 487-488).

Oral Presentations

SIAM	2025
ACM-BCB	2018

Poster Presentations

CBD S&T (Chemical and Biological Defense, Science and Technology Conference)	2024
GRC (Gordon Research Conferences)	2024
BIOIT (Bio-IT World Conference & Expo)	2024
TRICON (Precision Med TRI-CON)	2024
PSB (Pacific Symposium on Biocomputing)	2024
ACM-BCB	2016

Other Creative Products

Hyppo-X (Interactive visualization software)	2017 – 2020
TwinMe4AD (Software tool)	2024
P2MAT (Software tool)	2024

Other Scholarly Products

SHAD (Benchmark analysis during internship)	2018
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