

Mohammad Shah Alam, Ph.D.

Assistant Professor of Mathematics
Sul Ross State University, Texas, USA
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Academic Qualifications

Ph.D. in Applied Mathematics (2024)
University of Houston, Texas, USA
Dissertation: Data-driven Prediction of Dynamical Systems using Echo State Network with Transfer Learning

M.Sc. in Mathematics (2010)
Jahangirnagar University, Dhaka, Bangladesh
CGPA: 3.96/4.00 | Award: University Merit Scholarship
Dissertation: A Finite Element Method for One-Dimensional Dirichlet Helmholtz Boundary Value Problems

B.Sc. (Honors) in Mathematics (2009)
Jahangirnagar University, Dhaka, Bangladesh
CGPA: 3.65/4.00

Research Interests

- Data Science, Machine Learning, Deep Learning
- Time Series Analysis, Predictive Analytics
- Numerical Analysis, Ordinary and Partial Differential Equations

Academic Appointments

- Assistant Professor of Mathematics, Sul Ross State University, Texas, USA (Aug 2024 – Present)
- Graduate Teaching Assistant, University of Houston (Aug 2019 – Jul 2024)
- Assistant Professor, Mawlana Bhashani Science and Technology University (Feb 2017 – Jul 2019)
- Assistant Professor, Bangladesh University of Business and Technology (Jun 2015 – Feb 2017)
- Lecturer, Bangladesh University of Business and Technology (Feb 2012 – May 2015)

Courses Taught

- Undergraduate: Pre-Calculus, Calculus I–III, Linear Algebra, Differential Equations, Discrete Mathematics, Numerical Analysis, Statistics, Finite Mathematics, Complex Analysis, Number Theory, Geometry, History of Mathematics.
- Graduate/Upper Level: Partial Differential Equations, Operations Research, Advanced Numerical Methods.

Publications

1. Alam, M. S., Ott, W., & Timofeyev, I. (2025). Attractor learning for spatiotemporally chaotic dynamical systems using echo state networks with transfer learning. Submitted to *Chaos*. Preprint: <https://arxiv.org/abs/2505.24099v1>
2. Datta, M., Alam, M. S., Hahiba, U., Sultana, N., & Hossain, M. B. (2021). Exact solution of Goursat problem with linear and non-linear partial differential equations by double Elzaki decomposition method. *American Mathematical Forum*.
<http://article.sapub.org/10.5923.j.am.20211101.02.html>
3. Hossain, M. J., Alam, M. S., & Hossain, M. B. (2017). A study on numerical solutions of second-order initial value problems (IVPs) for ordinary differential equations with fourth-order and Butcher's fifth-order Runge-Kutta methods. *American Journal of Computational and Applied Mathematics*.
<http://article.sapub.org/10.5923.j.ajcam.20170705.02.html>
4. Salam, M. A., Alam, M. S., Miah, M. M., & Hossain, M. B. (2017). A comparative study of the number of Hantavirus pulmonary syndrome (HPS) cases by using cubic spline interpolation. *Journal of Science and Technology*, 7(1 & 2), 17–27. Mawlana Bhashani Science and Technology University (MBSTU).
5. Hossain, M. B., Hossain, M. J., Miah, M. M., & Alam, M. S. (2017). A comparative study on fourth-order and Butcher's fifth-order Runge-Kutta methods with third-order initial value problem (IVP). *American Journal of Computational and Applied Mathematics*. <http://article.sapub.org/10.5923.j.ajcam.20170705.02.html>
6. Islam, M. K., Alam, M. S., & Sarker, R. C. (2015). A study of Darcian effect on heat and mass transfer flow over an inclined surface in presence of chemical reaction. *International Journal of Engineering Research & Technology (IJERT)*.
<https://www.ijert.org/research/a-study-of-darcian-effect-on-heat-and-mass-transfer-flow-over-an-inclined-surface-in-presence-of-chemical-reaction-IJERTV4IS030639.pdf>
7. Alam, M. S., Islam, M. K., & Hye, M. A. (2013). Comparison of numerical solution with analytical solution of one-dimensional Dirichlet-Helmholtz boundary value problem. *Open Access Journal of Informatics (OAJI)*. <https://oaji.net/articles/2014/662-1395648128.pdf>

Conferences

- Twentieth Annual Texas Undergraduate Mathematics Conference, St. Mary's University, October 17-18, 2025
- Mini Symposium Talk, 8th Annual Meeting of the SIAM Texas- Louisiana Section, University of Texas at Austin, September 26-28, 2025
- 8th Annual SRSU Student Symposium, Sul Ross State University, April 10-11, 2025
- Poster Presentation, 5th Annual Meeting of the SIAM Texas- Louisiana Section, University of Houston, November 04-06, 2022
- Presenter & Organizer – Multiple Mathematics Conferences and Math Olympiads in Bangladesh

Awards and Honors

- Poster Presentation (1st Place), SIAM TX-LA Section, 2022
- 4th Place, Inter-University Mathematical Olympiad, BUET, 2009
- 1st Place, Intra-University Mathematical Olympiad, Jahangirnagar University, 2010
- Merit Scholarship, M.Sc. program, Jahangirnagar University, 2011

Professional Skills

- Programming & Numerical Tools: *Python, MATLAB, C, C++, Mathematica, Oracle SQL, MS Excel, Compute Machine.*
- Educational Technology: *Blackboard, Canvas, GeoGebra, Desmos.*

Professional Service & Outreach

- Curriculum Developer, B.S. in Mathematics Program, Sul Ross State University
- Member, Connecting with Students for Success, Sul Ross State University
- Organizer/Examiner, Math Olympiads in Bangladesh
- Adviser, Blood Donors' Organization: BADHAN, MBSTU Unit, Bangladesh
- Community Engagement: Volunteer in flood relief campaigns

Citizenship / Immigration Status

- U.S. Permanent Resident (Green Card holder through NIW- EB2 category)
- No future sponsorship required
- Open to relocation and travel