

## Muhammad Sohel Rana

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## EDUCATION

Ph.D. Candidate, Mathematics, University of Texas at Arlington - Expected: 2026

◇ Advisor: Keaton Hamm

M.S. Mathematics, Western Kentucky University - 2017

M.S. Applied Mathematics, Dhaka University - 2008

B.S. Mathematics, Dhaka University - 2007

## EMPLOYMENT

**June 2023 – Present** Graduate Research Assistant, University of Texas at Arlington

**Sep 2022 – May 2023** Graduate Teaching Assistant, University of Texas at Arlington

**Jan 2022 – Aug 2022** Lecturer, North South University, Bangladesh

**Sep 2019 – May 2021** Graduate Teaching Assistant, University of Texas at Arlington

**Sep 2015 – Dec 2017** Graduate Teaching Assistant, Western Kentucky University

**July 2012 - August 2015** Senior Officer, Pubali Bank Limited, Bangladesh

**Jan 2012 - June 2012** Math Teacher, Bangladesh International School and College, Bangladesh

**Jan 2011 - Dec 2011** Math Teacher, Bangladesh International Tutorial, Bangladesh

## PUBLICATIONS

### *Submitted manuscripts*

[s1] Muhammad Rana, Phuong Trinh, Ryan Bui, and Keaton Hamm, **Optimal transport based dimensionality reduction** (Approximately 19 pages, Submitted.)

[s2] Zahidur Talukder, Muhammad Rana, Keaton Hamm, and Mohammad Islam, **Empowering Clients: Self-Adaptive Federated Learning for Data Quality Challenges** (Approximately 11 pages, Submitted.)

### *Manuscripts in progress*

[s1] Muhammad Rana, and Keaton Hamm, **Unbalanced Optimal transport based dimensionality reduction.**

[s2] Md. Mehedi Hasan, Mohammad Abdul Halim, Muhammad Rana, Salma Yeasmin Jannaty and M. J. Uddin, **Analysis of Natural Convection Nanofluid Flow in Annular Regions Bounded by a Trapezoidal Outer Wall and Inner Wall Configurations of Triangular, Circular, and Square Geometries: A Comparative Study.**

## AWARDS

◇ Mathematics Academic Excellence Scholarship (University of Texas at Arlington)

⊙ Awarded yearly to graduate students who have demonstrated academic excellence (out of approximately 70 graduate students.)

- ◇ Dr. R. Glenn and Virginia Powers Scholarship (Western Kentucky University)
  - ⊙ Awarded to the best return graduate student (out of approximately 10 graduate students.)
- ◇ Honors results-based merit scholarship (University of Dhaka)
  - ⊙ Awarded to the best 2-3 students in the Mathematics department resident in Fazlul Huq Muslim Hall based on honors results.)

## P R E S E N T A T I O N S

### *Invited talks*

Empowering Clients: Self-Adaptive Federated Learning for Data Quality Challenges - Teatime event, Division of data science, University of Texas at Arlington, Arlington, TX, February 21, 2025.

## T E A C H I N G   E X P E R I E N C E

### U N I V E R S I T Y   O F   T E X A S   A T   A R L I N G T O N

#### *Graduate Teaching Assistant*

MATH 1426, Calculus I - Fall 2019

MATH 2425, Calculus II - Sprint 2020, Fall 2020, Spring 2021, Fall 2022, Spring 2023

STATS 1308, Elementary Statistical Analysis - Summer 2020

### N O R T H   S O U T H   U N I V E R S I T Y

#### *Lecturer*

MATH 116, Pre-Calculus, Spring 2022, Summer 2022

MATH 120, Calculus and Analytic Geometry-I, Spring 2022, Summer 2022

### W E S T E R N   K E N T U C K Y   U N I V E R S I T Y

#### *Graduate Teaching Assistant*

MATH 136, Calculus I, Fall 2015

MATH 137, Calculus II, Spring 2016, Fall 2016, Spring 2017, Fall 2017

## I N U S T R Y   E X P E R I E N C E

### **Senior Officer, Pubali Bank Limited, Bangladesh**

*June 2012 – July 2015*

- ◇ Managed client portfolios and assisted in retail banking operations.
- ◇ Collaborated with loan and advance teams on loan disburse and recovery.

## A C A D E M I C   S E R V I C E S

### *Volunteering Experience*

UTA Calculus Bowl, 2020, 2021, 2023, 2024

# S K I L L S

## *languages*

- ◇ Python - Proficient
- ◇ Mathematica - Proficient
- ◇ PostgreSQL - Intermediate
- ◇ LaTeX - Proficient