

# Samiha Chowdhury Rouf

PhD Candidate | Teaching Assistant | Research Assistant

U Texas Dallas  
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## EDUCATION

### University of Texas Dallas

Ph.D Candidate, Applied Mathematics (expected May 2021)

- Advisor: Dmitrii Rachinskii
- Research: Dynamical Systems, Epidemiological Models

MAT in Mathematics Education, Aug 2016

BS in Applied Mathematics, May 2014

## TEACHING EXPERIENCE

### Department of Mathematics, UTD

Teaching Assistant, 2017-present

- Teach two weekly review sessions per semester
- Courses Taught: Differential Calculus (2017-2018), Integral Calculus (2019), Linear Algebra (2020-)

### Dallas College (Richland Campus)

Mathematics Tutor, 2015

- Assisted students at the learning lab with coursework, and exam reviews by answering questions regarding their misconceptions on various mathematics concepts related to their course.

## PROJECTS

### Dynamics of SIR Model with Heterogeneous Response

- Faculty Mentor: Dmitrii Rachinskii
- Goal: Develop research paper that discusses the implications of uniformity in public response to disease spread via numerical models

### Time-resolved Cone Beam CT Reconstruction

- Funded by NSF Enriched Doctoral Training Program
- Faculty Mentors: Yan Cao, Yifei Lou
- End-product: Machine learning algorithm for 4D CBCT image reconstruction

## PUBLICATIONS

1. Jana Kopfová, Petra Nábêlková, Dmitrii Rachinskii, **Samiha Rouf**. *Dynamics of SIR model with vaccination and heterogeneous behavioral response of individuals modeled by the Preisach operator*. Under review for Journal of Mathematical Biology.
2. Zuzana Chladná, Jana Kopfová, Dmitrii Rachinskii, **Samiha Rouf**. *Global dynamics of SIR model with switched transmission rate*. Journal of Mathematical Biology. 80, 1209–1233. Jan 2020.
3. **Samiha Rouf**, Chenyang Shen, Yan Cao, Conner Davis, Xun Jia, and Yifei Lou. *A Neural Network Approach for Image Reconstruction from a Single X-ray Projection*. Medical Image Understanding and Analysis. MIUA 2019. Vol 1065, 208-219.

## PRESENTATIONS & TALKS

1. Global dynamics of SIR model with switched transmission rate. *Contributed talk at Texas Women in Math Symposium*. TAMU, College Station, TX. Feb 1, 2020.
2. Global dynamics of SIR model with switched transmission rate. *Poster at SIAM TX-LA 2<sup>nd</sup> Meeting*. SMU, Dallas, TX. Nov 2, 2019.
3. A Neural Network Approach for Image Reconstruction from a Single X-ray Projection. *Contributed talk at SIAM Annual Meeting*. Pittsburg, PN. July 14, 2017.
4. A Neural Network Approach for Image Reconstruction from a Single X-ray Projection. *Poster at 7th Annual External Advisory Council Meeting*. UTD Richardson, TX. Dec 1, 2017.

## REFERENCES

1. Dmitrii Rachinskii  
Professor  
University of Texas Dallas, USA  
Department of Mathematics
2. Jana Kopfová  
Associate Professor  
Silesian University in Opava , Czech Republic  
Mathematical Institute
3. Yifei Lou  
Associate Professor  
University of Texas Dallas, USA  
Department of Mathematics
4. Yan Cao  
Associate Professor  
University of Texas Dallas, USA  
Department of Mathematics
5. Rabin Dahal  
Senior Lecturer I  
University of Texas Dallas, USA  
Department of Mathematics