Samiha Chowdhury Rouf

Ph.D. | Teaching Assistant | Research Assistant

MATLAB - Python - Java - Modeling - Machine Learning

EDUCATION

University of Texas Dallas

Ph.D in Applied Mathematics, May 2021

- Advisor: Dmitrii Rachinskii
- Dissertation: *Dynamics of SIR model with switching transmission rate and vaccination rate characterized by a relay system or Preisach operator*

MAT in Mathematics Education, May 2016

BS in Applied Mathematics, May 2014

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 (2020-2021)

Research Assistant, 2016-2018

- Funded by NSF Enriched Doctoral Training Program
- External Partner: UTSW Department of Radiation and Oncology
- Developed a machine learning algorithm for 4D CBCT image reconstruction
- Published results in a conference paper (MIUA 2019)

DEFINE Afterschool

Research & Development Associate, 2015-2018

- Conducted thorough research on emotional intelligence and developed investor presentations and promotional material.
- Assisted founders promote the start-up locally at 53rd ISNA Convention Chicago, AMCC 2016 Newark, and internationally at Kuala Lumpur Malaysia.

PUBLICATIONS

1. Dmitrii Rachinskii, and **Samiha Rouf**. *Dynamics of SIR model with heterogeneous response to intervention policy.* Submitted to Theoretical Population Biology.

2. Jana Kopfová, Petra Nábělková, Dmitrii Rachinskii, **Samiha Rouf**. *Dynamics of SIR model with vaccination and heterogeneous behavioral response of individuals modeled by the Preisach operator.* Accepted by Journal of Mathematical Biology.

3. 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.

4. **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 2nd 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
   https://personal.utdallas.edu/~dxr124030/

2. Jana Kopfová
   Associate Professor
   Silesian University in Opava , Czech Republic
   Mathematical Institute
   https://www.slu.cz/math/cz/lide/kopfova-jana/

3. Yifei Lou
   Associate Professor
   University of Texas Dallas, USA
   Department of Mathematics
   https://sites.google.com/site/louyifei/Home

4. Yan Cao
   Associate Professor
   University of Texas Dallas, USA
   Department of Mathematics
   https://personal.utdallas.edu/~yxc069200/