

Deepjyoti Ghosh

EDUCATION

- 2021(Exp) **Doctor of Philosophy**, *University of Houston*, Houston - USA, Mathematics.
- 2014 **Masters of Science**, *University of Delhi*, Delhi - India, Mathematics.
- 2012 **Bachelors of Science**, *St.Xavier's College(Autonomous)*, *University of Calcutta*, Kolkata - India, Mathematics Honors.

RESEARCH

- In Progress **Delay Causes Reliability Failure in Glucose - Insulin System.**
Abstract: Medicine rests on the fundamental assumption that medical intervention is reliably predictable. However, we have evidence that this prediction reliability can fail for physiological systems with meaningful delay. One such system is the glucose-insulin system. We will show that when the glucose-insulin system is subjected to forcing drives used in the ICU setting, chaos that is both sustained in time and observable can result. We call this phenomenon delay-induced uncertainty (DIU). Importantly, we demonstrate the presence of DIU using models that have been fit to ICU patient data.
Collaborators: W.Ott (UH), D.Albers (University of Colorado)
- Pre-print **Efficient Evader detection in Mobile Sensor Networks.**
 Available *Abstract:* Let us have sensors in some closed domain in \mathbb{R}^2 and each of these sensors have a fixed common sensing radius. The sensors does not have GPS capabilities but they can recognize another sensor or an intruder within its sensing ball. Thus only with the help of local information we are trying to solve the global problem of detecting an intruder. With the help of algebraic topology tools we build an algorithm to compute the maximum detection time and examine various sensor motion models where the sensors move either dependently or independently to one another. Pre-print Link
Collaborators: H.Adams (Colorado State University), C.Mask (UH), K.Williams (UH), W.Ott (UH)

TEACHING EXPERIENCE

- Fall 2020 - **Instructor of Record**, Department of Mathematics, UH.
 Math 1313 - Finite Math with Applications
- Winter Mini - **Teaching Assistant**, Department of Mathematics, UH.
 2019,2020, Math 1432 - Calculus 2 (*Online*)
- Summer 2020
- Fall 2019 - **Lead Teaching Assistant**, Department of Mathematics, UH.
 Spring 2020 Math 1432 - Calculus 2
- Summer 2019 **Teaching Assistant and Grader**, Department of Mathematics, UH.
 Math 2331 - Linear Algebra
 Math 3363 - Introduction to Partial Differential Equation

Spring 2018 - **Instructor of Record**, Department of Mathematics, UH.
 Spring 2019 Math 1312 - Introduction to Mathematical Reasoning
 Fall 2017 **Teaching Assistant and Grader**, Department of Mathematics, UH.
 Math 1432 - Calculus 2
 Spring 2017 **Teaching Assistant and Grader**, Department of Mathematics, UH.
 Math 1431 - Calculus 1
 Math 3363 - Introduction to Partial Differential Equation
 Fall 2016 **Teaching Assistant and Grader**, Department of Mathematics, UH.
 Math 3363 - Introduction to Partial Differential Equation

Conference Talks/Paper

July 2020 **Contributed Talk**, SIAM-CAIMS 2nd Joint Annual Meeting.
 Reliability Failure in Glucose Insulin System
 June 2019 **SAMSI**, Pacific Northwest National Laboratory Group.
 A Machine Learning Approach for Solving AC Optimal Power Flows

Awards/Fellowships

2019-2020 **UH Provost Graduate Teaching Assistant Award**, Finalist.
 July 2020 **SIAM Student Travel Award**, SIAM Annual Meeting 2020.
 June 2020 **SIAM Student Travel Award**, SIAM Life Sciences 2020.
 July 2019 **Travel and Lodging Support**, SAMSI, University of North Carolina,
 Raleigh.
 June 2019 **Full Support**, Data Science and Optimization Workshop, University of
 Washington, Seattle.
 June 2019 **Travel Award for Equadiff Summer School**, Equadiff-2019, Leiden
 Netherlands.
 Fall 2016 - **Graduate Tuition Fellowship**, Department of Mathematics, UH.
 January 2014 **Full Support**, National Program on Differential Equations, DST, Gov. of
 India.
 June 2009 **Full Support**, MTTS, DAE, Gov. of India.

ACADEMIC CONFERENCE/WORKSHOPS

July 2020 **SIAM-CAIMS 2nd Joint Annual Meeting**.
 Contributed Talk
 July 2019 **SAMSI IMSM Workshop**.
 University of North Carolina, Raleigh, North Carolina
 Pacific Northwest National Laboratory(PNNL) Project Group
 July 2019 **EQUADIFF 2019**.
 Equadiff Workshop 2019, Leiden, Netherlands
 June 2019 **Data Science and Optimization Workshop**.
 University of Washington, Seattle
 May 2019 **SIAM Conference**.
 SIAM DS-2019, Salt Lake City, Utah

- October 2018 **SIAM Conference.**
SIAM Texas-Louisiana Chapter
- January 2014 **AWCMIEA.**
Indian Institute of Technology, Kanpur (IIT-K)
- June 2009 **Mathematics Training and Talent Search.**
Sambalpur University, Orissa

EXTRACURRICULAR ACTIVITIES

- 2017-2018 **Graduate and Professional Student Association.**
Secretary - GPSA, Graduate School, University of Houston
- 2009-2011 **Analytica, St.Xavier's College(Autonomous), Kolkata.**
Core Committee Member
A 3 day mathematical seminar sponsored by NBHM, DAE, Gov. of India