Dr. Rupak Datta

Assistant Professor

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Address

Present	**Assistant Professor**, Department of Mathematics, Tripura University (A central University), Suryamaninagar, 799022, Agartala, Tripura, India.
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Education

2021	**Ph.D. in Mathematics**, National Institute of Technology, Agartala, Tripura, India
2010–2012	**Master of Science (M.Sc.) in Mathematics**, Tripura University (A Central University), India
2007–2010	**Bachelor of Science (B.Sc), Mathematics (Honours)**, Ramkrishna Mahavidyalaya, Tripura, India
2005–2007	**H.S. (+2 Stage) Examination**, DSCM H.S. School (TBSE), Tripura, India
2005	**Secondary Examination**, Ratacharra High School (TBSE), Tripura, India

Ph.D. Thesis Details

Thesis Title	Stability Analysis and Controller Synthesis of Fuzzy Time-Delay Systems in a Linear matrix Inequality Framework (Degree Awarded on June 18, 2021)
Ph.D. Supervisors	**Prof. Baby Bhattacharya**, Department of Mathematics, NIT Agartala, Tripura, India and **Dr. Rajeeb Dey**, Department of Electrical Engineering, NIT Silchar, Assam, India

Experience Description (Teaching/Research)

Dec 2023–To date	**Assistant Professor** in the Department of Mathematics, Tripura University, Suryamaninagar, 799022, Agartala, Tripura, India.
Mar 2023–Dec 2023	**Research Assistant Professor** in the Department of Mathematics, SRM Institute of Science and Technology (SRMIST), Kattankulathur, 603203, Tamil Nadu, India.
Mar 2022–Mar 2023:	I was a **Postdoctoral Fellow** at the Research Center for Wind Energy Systems, School of IT Information & Control Engineering, **Kunsan National University**, Gunsan-si, Jeonbuk 54150, Republic of Korea.
Sep 2020–Mar 2021:	As a **Postdoctoral Fellow**, I worked on the SPARC project in the Department of Electrical Engineering at NIT Silchar (In joint collaboration with Dalhousie University, Canada), 788010, Assam, India.

Area of Interest/Specialization

Teaching:	Real Analysis, Complex Analysis, Linear Algebra, Numerical Analysis, Differential Calculus.
Research:	Fuzzy Control Theory, Time-delay Systems, Sampled-data Control, Robust Control.

Research Publications

Journal Articles

2023   **Rupak Datta**, Young Hoon Joo, "Fuzzy memory sampled-data controller design for PMSG-based WECS with stochastic packet dropouts", **IEEE Trans. Fuzzy Syst.**, v. 31 (12), pp. 4421–4434, **I.F-11.9**, **SCIE**

2023   M. U. Asad, U. Farooq, J. Gu, R. Dey, N. Adhikary, **Rupak Datta**, C. Chang, "Disturbance Observer-based Extended State Convergence Architecture for Multilateral Teleoperation Systems", **Int. J. Robotics and Automation**, v. 38 (910), **I.F-1.042**, **SCIE** 10.2316/J.2023.206-0712.

2022   **Rupak Datta**, R. Saravanakumar, Rajeeb Dey, B. Bhattacharya, "Further results on stability analysis of Takagi–Sugeno fuzzy time-delay systems via improved Lyapunov–Krasovskii functional", **AIMS Mathematics**, v. 7 (9), pp. 16464–16481, **I.F-2.2**, **SCIE**.

2022   R. Saravanakumar, **Rupak Datta**, and Yang Cao, "New insights on fuzzy sampled-data stabilization of delayed nonlinear systems", **Chaos, Solitons & Fractals: An interdisciplinary journal of nonlinear science**, v. 154, pp. 111654, **I.F-7.8**, **SCI**

2021   R. Saravanakumar, Amir Amini, **Rupak Datta**, and Yang Cao, "Reliable Memory Sampled-Data Consensus of Multi-agent Systems with Nonlinear Actuator Faults", **IEEE Trans. Circuits and Systems II: Express Briefs**, v. 64 (4), pp. 2201–2205, **I.F-3.691**, **SCI**

2021   **Rupak Datta**, R. Saravanakumar, R. Dey, B. Bhattacharya, and C. K. Ahn, "Improved Stabilization Criteria for Takagi–Sugeno Fuzzy Systems with Variable Delays", **Inf. Sci.**, v. 579, pp. 591–606, **I.F-8.1**, **SCI**

2020   **Rupak Datta**, R. Dey, B. Bhattacharya, R. Saravanakumar, and O.M. Kwon, "Stability of T–S fuzzy systems with variable delays via new Bessel–Legendre polynomial based relaxed integral inequality", **Inf. Sci.**, v. 522, pp. 99–123, **I.F-8.1**, **SCI**

2020   **Rupak Datta**, R. Dey, and B. Bhattacharya, "Improved delay-range-dependent stability condition for T–S fuzzy systems with variable delays using new extended affine Wirtinger inequality", **Int. J. Fuzzy Syst.**, v. 22, pp. 985–998, **I.F-4.3**, **SCIE**

2020   **Rupak Datta**, R. Dey, R. Saravanakumar, and B. Bhattacharya, "New delay-range-dependent stability condition for fuzzy Hopfield neural networks via Wirtinger inequality", **J. Intell. Fuzzy Syst.**, v. 38, no. 5, pp. 6099–6109, **I.F-2.0**, **SCIE**

2019   **Rupak Datta**, R. Dey, B. Bhattacharya, R. Saravanakumar, and C. K. Ahn, "New double integral inequality with application to stability analysis for linear retarded systems", **IET Control Theory & Appl.**, v. 13, no. 10, pp. 1514–1524, **I.F-2.6**, **SCI**

2019   **Rupak Datta**, R. Dey, and B. Bhattacharya, "Further improved stability condition for T–S fuzzy time-varying delay systems via generalised inequality", **Int. J. Advanced Intelligence Paradigms**, v. 14, no. 3, pp. 310–327, **SCOPUS**

2018   **Rupak Datta**, B. Bhattacharya, and A. Chakrabarti, "On improved delay-range-dependent stability condition for linear systems with time-varying delay using Wirtinger inequality", **Int. J. Dynamics and Control**, v. 6, no. 4, pp. 1745–1754, **SCOPUS**

Book/Chapters

2020   M. U. Asad, J. Gu, U. Farooq, R. Dey, N. Adhikary, **Rupak Datta**, C. Chang, "A Multi-Master Single-Slave Teleoperation System Through Composite State Convergence", **Communication and Control for Robotic Systems**, Vol. 229, pp. 141–153, **SCOPUS**

2020   N. Adhikary, R. Dey, M. Usman Asad, J. Gu, U. Farooq and **Rupak Datta**, "Adaptive robust control of tele-operated master-slave manipulators with communication delay", **Communication and Control for Robotic Systems**, Vol. 229, pp. 123–140, **SCOPUS**

2019   **Rupak Datta**, R. Dey, B. Bhattacharya, and A. Chakrabarti, "Delayed state feedback controller design for inverted pendulum using T–S fuzzy modelling: An LMI approach", **Innovations in Infrastructure. Advances in Intelligent Systems and Computing**, v. 757, pp. 67–79, **SCOPUS**

Conference (National/International)

2024 R. Saravanakumar and **Rupak Datta**, "Memory Sampled-data Control for Fuzzy Chaotic Systems: An Extended Looped Functional Approach", **ICNCS-2024**, VIT Chennai, Tamil Nadu, India, **Accepted for publication in The European Physical Journal Special Topics (EPJ ST)**, **SCIE**

2023 **Rupak Datta**, R. Dey, R. Saravanakumar, K. Guelton, "Extended Dissipativity Analysis for Delayed Fuzzy Systems Using Polynomial Based Integral Inequality", **IFAC-PapersOnLine**, v. 56 (2), pp. 2196–2201, **SCOPUS**

2022 **Rupak Datta**, Rajeeb Dey, and Nabanita Adhikari, "Dissipative Control for Single Flexible Joint Robotic System via T–S Fuzzy Modelling Approach", **IFAC-PapersOnLine**, v. 55, pp. 637–642, **SCOPUS**

2022 **Rupak Datta**, R. Dey, N. Adhikari, J. Gu, U. Farooq, and M. U. Asad, "H_∞ Control for T–S Fuzzy System via Delayed State Feedback: Application to Two-Link Robotic System", **IFAC-PapersOnLine**, v. 55, pp. 777–782, **SCOPUS**

2022 R. Saravanakumar, Kaibo Shi, **Rupak Datta**, "Reliable Memory Sampled-Data Control for T–S Fuzzy Systems", **IFAC-PapersOnLine**, v. 55, pp. 722–727, **SCOPUS**

2021 R. Saravanakumar and **Rupak Datta**, "State estimation for delayed memristor-based recurrent neural networks", Accepted in **ICMSAE-2021**, HITS, Chennai, India (Final version will be published in AIP Procedings), **SCOPUS**

2021 **Rupak Datta** and R. Saravanakumar, "Dissipative Control for Delayed T–S fuzzy System with Data Packet Dropout", **ISCMI**, 2021, Cairo, Egypt, pp. 43–47, **IEEE Explore**, **SCOPUS**

2019 **Rupak Datta**, R. Dey, B. Bhattacharya, and A. Chakrabarti, "Further results on delay-range-dependent stability condition for fuzzy time-delay systems: Less LMIs and decision variables", **ICERME**, NIT Agartala, India

2018 **Rupak Datta**, B. Bhattacharya, and A. Chakrabarti, "A novel stability condition for T–S fuzzy system with time-delay via the second-order Bessel–Legendre inequality", **ICRTMS**, MBB University, India

2017 **Rupak Datta**, R. Dey, B. Bhattacharya, and A. Chakrabarti, "Improved stability condition for fuzzy systems with interval time-varying delay", **Joint 17th World Congress of IFSA and 9th International Conference on SCIS**, Otsu, Japan, **IEEE Explore**

Conference/Workshop Attended

2019 **International Conference on "Emergent Research in Mathematics and Engineering (ICRTMS-2019)"**, 17th–18th May, NIT Agartala, India.

2018 **International Conference on "Recent Trends in Mathematical Sciences (ICRTMS-2018)"**, 24th–25th March, MBB University, Tripura, India.

2018 **National workshop on "Soft Computing and its Application in Real Life Problems"**, 9th–12th April, NIT Agartala, Tripura, India.

2016 **GIAN course on "Fuzzy Interpolative Controller and Applications"**, 19th–26th September, NIT Silchar, Assam, India.

2016 **National Conference on "Engineering Problems and Applications of Mathematics"**, 11th–12th June, NIT Agartala, Tripura, India.

2016 **National workshop on "Computational study on Fluid Transport Phenomena"**, 5th–6th February, NIT Agartala, Tripura, India.

2016 **National workshop on "Recent Advances in soft computing Techniques"**, 29th–31st January, NIT Agartala, Tripura, India.

2015 **National workshop on "Techniques in Bioinformatics"**, 7th–8th August, NIT Agartala, Tripura, India.

2015 **Short term course (STC) on "Mathematical Methods for Scientists and Engineers"**, 29th June to 10th July, SVNIT Surat, Gujrat, India.

2014 **National workshop on "Recent Advances on Applied Mathematics"**, 20th–21st September, NIT Agartala, Tripura, India.

2014 **National Conference on "Ancient Indian Mathematics"**, 8th–9th February, Agartala, Tripura, India.

2014 **National workshop on "Advances in multi-criteria decision making (MCDM) Techniques"**, 13th–14th January, NIT Agartala, Tripura, India.

Awards/Achievements

2013: Institute Research Fellowship for Ph.D. funded by TEQIP-III.

2021: Postdoctoral Fellowship from Basic Science research Program through the National Research Foundation (NRF) funded by the Ministry of Education, Republic of Korea.

Computer Skills

MATLAB/Simulink, LATEX, C, C++, MAPLE, Microsoft, Mathematica.

Language Known

Bengali (Mother Tongue), Hindi and English.

Membership/Positions of Responsibility/Organizations

Since 2023 Life Member of the Indian Mathematical Society (ID-L/2023/069)

Since 2023 Life Member of the Ramanujan Mathematical Society (Membership No-1858)

Since 2023 Life Member of the Tripura Mathematical Society

2019: Organizing Member, ICERME-2019, NIT Agartala, Tripura, India

2016: Organizing Member, EPAM-2016, NIT Agartala, Tripura, India

Research Collaboration

1. Dr. Rajeeb Dey, Dept. of Electrical Engineering, 788010, NIT Silchar, Assam, India
2. Prof. Baby Bhattacharya, Dept. of Mathematics, 799046, NIT Agartala, Tripura, India
3. Dr. Ramasamy Saravanakumar, MSU-BIT-SMBU Joint Research Center of Applied Mathematics, Shenzhen MSU-BIT University, Shenzhen, 518172, China
4. Prof. Choon Ki Ahn, School of Electrical Engineering, Korea University, Seoul, 02841, Republic of Korea
5. Prof. O.M. Kwon, School of Electrical Engineering, Chungbuk National University, Cheongju 28644, South Korea
6. Prof. Young Hoon Joo, School of IT Information and Control Engineering, Kunsan National University, Gunsan-si, Jeonbuk 54150, Republic of Korea
7. Prof. Kaibo Shi, School of Electronic Information and Electrical Engineering, Chengdu University, Chengdu 610106, China
8. Prof. Kevin Guelton, CReSTIC EA3804 – Université de Reims Champagne-Ardenne, Moulin de la Housse BP1039, 51687 Reims cedex 2, France
9. Prof. Jason Gu, Department of Electrical and Computer Engineering, Dalhousie University, Halifax, NS, B3J 1Z1, Canada
10. Dr. Amir Amini, Department of Electrical and Computer Engineering, Concordia University, Montreal, QC, Canada
11. Dr. Nabanita Adhikary, Institute of Automatic Control, Łódz University of Technology, Łódz, Poland and Dept. of Electrical Engineering NIT Silchar, 788010, India
12. Dr. Muhammad Usman Asad, Navel Fleet Engineering School, Dalhousie University, Halifax, Canada
13. Dr. Abanishwar Chakrabarti, Dept. of Electrical Engineering, NIT Agartala, Tripura, India

Country Visited

1. March 2022 to February 2023, Kunsan National University, Republic of Korea

Reviewer

1. IEEE Transaction on Neural Networks and Learning Systems
2. IEEE Transactions on Circuits and Systems I: Regular Papers
3. IEEE Transaction on Circuits and Systems II: Express Briefs
4. IEEE Transactions on Systems, Man and Cybernetics: Systems
5. IEEE Transaction on Cybernetics
6. IEEE Transaction on Fuzzy Systems
7. IEEE Systems Journal
8. IET Control Theory & Applications
9. International Journal of Systems Science
10. International Journal of control, Automation and Systems.
11. Fuzzy Sets and systems
12. Expert Systems With Applications
13. ISA Transactions
14. Mathematical Problems in Engineering
15. Turkish Journal of Electrical Engineering & Computer Sciences
16. Mathematical Modelling and Control
17. International Journal of Bifurcation and Chaos
18. Proyecciones (Antofagasta, On line)

Declaration

I hereby declare that all information given above is true, complete, and correct to the best of my knowledge.

Date: 17-05-2024   (Dr. Rupak Datta)