

RESUME

Name: Goshaidas Ray

(Former - Professor, EE Dept. IIT Kharagpur.)



-
-
- A. (i) Date of Joining (IIT Kharagpur): 2nd May, 1984.**
- (ii) Date of Birth: 27th.Oct. 1951;**
- (iii) Date of Retirement: 31st. Oct., 2016 & Semester Extension December-2016**
- (iv) Higher Academic Grade (Hag)-scale w. e. f: 18th August, 2013,
Pay in Pay-band: Rs. 79000=00**
- (v) Higher Secondary Education: From West Bengal Board of Secondary Education, 1968.**
- (vi) Graduation:: From Jadavpur Univ. , Kolkata, West Bengal, 1974**
- (vii) M Tech. Degree : From IIT Kharagpur , West Bengal, 1977**
- (viii) PhD Degree: from IIT Delhi, 1982**
- (ix) Lecturer : RIT (NIT) Jamshedpur: From July 1982 to April 1984.**
- (x) Teaching Experience: 34 years and 2 months (1 year and 6 months (RIT, Jamshedpur) + 32yrs and 8 months (IIT, Kharagpur))**
- (xi) IEEE Senior Member**

A1. Area of research interest:

(i) Decentralized state and parameter estimation of large scale system (ii) Stability and stabilization of expanded systems (iii) Set of stabilizing PID controller (iv) Sliding mode controller for multi-link robotic manipulator (v) Application of intelligent controllers in physical systems (vi) Design of robust H_∞ controllers for uncertain dynamic system (vii) Stability analysis and stabilization of time-delay systems (viii) Network control systems.

B. **Subject Taught Till 2016** (Spring Semester, IIT KGP):

1. Basic Elect. Technology (1 st . Yr., UG)	2. Computer Aided design (PG)
3. Introduction to Computing (1 st . Yr., UG)	4. Computational Techniques (PG)
5. Numerical Analysis (3 rd . Yr., UG)	6. Control System-1 (UG, 3 rd .Yr.)
7. Control system-2 (UG, 4 th .Yr)	8. Linear control Theory (PG/RS)
9. Digital Signal Processing (UG/PG/RS)	10. Digital control Theory (PG/RS)
11. Signals and Network (UG)	12. Advanced Control Theory (PG/RS)
13. Nonlinear Control (PG/UG/RS)	14. Intelligent Control (PG/UG)
15. Optimal Control (PG/UG/RS)	16. Estimation of Signals and Systems (PG/UG/RS)
17. Robust Control (PG/UG/RS)	18. Control System Engg. (UG, Autumn, 2016)

C. **Subjects Taught and students strength** in the class (Large Class): Credits :4

Subject	Class Strength (Approx.)	Period
1 Signals and Networks (UG)	251	2013-2016 (Autumn)
2. Electrical Technology (UG)	270	2011-2013 (Autumn & Spring)
3. Digital Signal Processing (UG/PG)	90 (Av.)	2008-2011 (Autumn)
4. Electrical technology (UG)	180	2003-2005 (Spring)
5. Control Theory (PG/UG)	40	At least four years (Autumn)
6. Control System-I & II (UG)	40	1993 -1995 (At least two years)
7. Electrical Technology (UG)	75	1992-1994 (Spring)
8. Introduction to Computing (UG)	70	1987-90 (Spring)
9. Electrical Technology (UG)	75	1984- 1988 (Autumn)

Book Published: Stability and Stabilization of Linear and Fuzzy Time-Delay Systems: A Linear Matrix Inequality Approach, **Springer Publisher, 2018**, Authors: Rajeeb Dey, Goshaidas Ray, E. Balas Valentina E

D1. **Complete List of Publications In Int. Journal** (in reverse Chronology) for the period 2016-1981: **No of papers in Int. Journal: 78**

1. M. Venkatesh, S. Patra Patra, and **Goshaidas Ray**, “ Observer based stabilization of linear discrete-time varying delay system”, J of Dynamic systems, Measurement and Control” (accepted).

2. M. Venkatesh, S. Patra Patra, and **Goshaidas Ray**, “ Improved robust stability and stabilization conditions for discrete-time linear systems with time-varying delay” **International Journal of Automation and Control**, 2019.
3. M. Venkatesh, S. Patra Patra, and **Goshaidas Ray**, “ Observer based controller design for linear time-varying delay systems using a new Lyapunov-Krasovskii functional” **International Journal of Automation and Control** 2020.
4. M. Venkatesh, S. Patra Patra, K. Ramakrishnan, and **Goshaidas Ray**, “ An improved stability result for linear time-delay system using a new Lyapunov-Krasovskii functional and extended reciprocally convex inequality” **International Journal of Systems Science**, vol. 49, no. 12, 2018.
5. G. S. Durgha Prasad, **Goshaidas Ray** and Ven Mangam, “Accreditation of Self-Financing Technical Institutions in India: A New Prospective to Improve Quality” *Journal of Engineering Education Transformations*, Vol. , no., 2018.
6. K. Ramakrishnan, J K Pragatheeswaran and **Goshaidas Ray**, “Robust stability of networked load frequency control systems with time-varying delays” **Electric Power Components and Systems**, vol.45, no.3, 2017.
7. K. Ramakrishnan and **Goshaidas Ray**, “Stability criterion for Network control systems with Additive Time-Varying State-Delays and bounded nonlinearities” **Int. J of Systems, Control & Communications**, vol.7, no.1, 2016.
8. K. Ramakrishnan and **Goshaidas Ray**, “Stability Criteria for nonlinearly perturbed load-frequency systems with time-delay” **IEEE Trans. J on Emerging and selected Topics in Circuits and Systems**, Vol. 5, No. 3, pp. 383-392, September, 2015.
9. Rajeeb Dey, S Ghosh, **Goshaidas Ray**, and A Rakshit, “Improved delay-range dependent stability analysis of a time-delay system with norm-bounded uncertainty” **ISA Transaction** , July, 2015.
10. K. Ramakrishnan, V Venkatachalam, and **Goshaidas Ray**, “Improved delay-dependent stability criteria for continuous systems with two additive time-varying delay components” **Communications in Nonlinear Science and Numerical Simulation**, vol.24, 2015. (<http://dx.doi.org/10.1016/j.cnsns.2014.12.003>.)
11. K. Ramakrishnan and **Goshaidas Ray**, “Improved results on delay-dependent stability on LFC systems with multiple time-delays ,” **J of Control, Automation and Electrical Systems**, vol.26, no.1, 2015. (DoI.10.1007/s40313-015-0171-9.
12. Rajeeb Dey, S Ghosh, **Goshaidas Ray**, and A Rakshit “Improved Delay-Dependent Stabilization of Time-Delay Systems with Actuator Saturation” **International Journal of Robust and Nonlinear Control**, Vol.24, pp. 902-917, 2014.
13. K. Ramakrishnan and **Goshaidas Ray**,“ (Technical Brief), Robust non-fragile stabilizing controller for an uncertain stochastic nonlinear system with interval time-varying state-delays: Prescribed H_∞ performance level” **Journal of Dynamic Systems, Measurement and Control**, vol.136, no.5, 2014.

14. Leena G , and **Goshaidas Ray**, “ A Set of stabilizing PID Controller for MIMO Systems,” **Int. J of Control & Automation**, Vol.7, no.4, pp.175-190, 2014.
15. K. Ramakrishnan and **Goshaidas Ray**, “ Robust Stability Criteria for a class of Uncertain Discrete-Time Systems with Time-Varying Delay” **Applied Mathematical Modeling (Elsevier)**, Vol.37, pp.1468-79, 2013.
16. Arun Kishore W.C, Santanu Dasgupta, **Gosaidas Ray** and Siddhartha Sen “ Control allocation for an over-actuated satellite launch vehicle” **Aerospace Science and Technology** , Vol.28, pp.56-71, 2013 .
17. Rajeeb Dey, S Ghosh, **Goshaidas Ray**, and A Rakshit “H_infinity Load frequency control of interconnected power systems with communication delay” **International Journal of Electrical Power and Energy Systems**, vol.42, 672-684, 2012.
18. Ramakrishnan and **Goshaidas Ray**, "Robust Stability Criterion for Markovian Jump Systems with Nonlinear Perturbations and Mode-dependent Time-delays" **International Journal of General Systems**, Vol.41, No.4, pp.373-393, 2012.
19. Arun K. Sharma and **Goshaidas Ray**, “Robust Controller with State-Parameter Estimation for Uncertain Network Control System” **IET Control Theory and Application**, vol.6, issue-18, pp. 2775-2784, 2012.
20. S. Patra, S Sen and **Goshaidas Ray**, “ Local Stabilization of Uncertain LTI Plant with Bounded Control Inputs: Parametric H_infinity Loop Shaping Approach” **IET Control Theory and Application**, vol.6, no.11, 1567-1576, 2012.
21. Sandip Ghosh, S. K. Das and **Goshaidas Ray**, “Decentralized Adaptive Robust Stabilization of Uncertain Interconnected Time-Delay Systems”, **International Journal of Adaptive Control and Signal Processing** , vol. 26, pp. 13-29, 2012.
22. S. Patra, S Sen and **Goshaidas Ray** “Load Frequency Control of Interconnected Power Systems Via Low Order Loop Shaping Controller”, **Int. J of Power and Energy Systems** , vol.32, no.4, pp.167-173, 2012.
23. Leena G , K.B. Dutta and **Goshaidas Ray**, “ Design of a set of controllers for an n-link robot manipulator” **Int. J of Automation and Control** , vol.6, no.3, 2012.
24. K. Ramakrishnan and **Goshaidas Ray**, “Improved delay-range-dependent robust stability criteria for a class of Lur'e systems with sector-bounded nonlinearity”, **Journal of the Franklin Institute**, vol. 348, no. 8., pp 1769-1786, 2011. Elsevier Publication.
25. S. Patra, S Sen and **Goshaidas Ray**, “A Linear matrix inequality approach to parametric H_infinity loop shaping control” **Journal of the Franklin Institute**, vol. 348, no. 8., pp 1832-1846, 2011.
26. K. Ramakrishnan and **Goshaidas Ray**, “Robust stability criteria for uncertain neutral systems with interval time-varying delay,” **Journal of Optimization Theory and Applications**, Vol.149, 2011, vol. 149, no.2, pp-366-384, 2011, Springer.

27. S. Patra, S Sen and **Goshaidas Ray**, “Design of H_∞ loop-shaping controller for LTI system with input saturation: polytopic gain scheduled approach”, **J of Dynamic Systems, Measurement, and Control**, vol.133, no.1., 2011. (Technical Brief)
28. K. Ramakrishnan and **Goshaidas Ray**, “Stability criteria with less LMI variables for linear system with additive time-delays,” **J of Applied Mathematics and Computing**, vol.36, no.2, pp. 263-274, 2011, Springer.
29. K. Ramakrishnan and **Goshaidas Ray**, “Delay-range-dependent stability criterion for interval time-delay systems with nonlinear perturbations, ” **International J. of Automation and Computing**, vol.8, no.1, 2011, Springer.
30. K. Ramakrishnan and **Goshaidas Ray**, “Robust stability criteria for uncertain linear systems with interval time-varying delay”, **J. of Control Theory and Application**, vol.9, no.4, 2011, Springer.
31. K. Ramakrishnan and **Goshaidas Ray**, “Stability criterion with less LMI variables for linear discrete-time systems with additive time-delays,” **International J. of Automation and Computing**, vol.8 , no.4, 2011, Springer.
32. K. Ramakrishnan and **Goshaidas Ray**, “Improved stability criteria for Lur`e type systems with time-varying delay”, **J of Acta Automatica Sinica**, vol.37, no.5, 2011, Elsevier Publication.
33. Leena G , K.B. Dutta and **Goshaidas Ray**, “ A class of stabilizing PID controllers for position control of single-link robot, **Int. J of Control and Automation**, vol.4, no.3, Sept. 2011.
34. Amol Khalate, Leena G and **Goshaidas Ray**, “An Adaptive Fuzzy Controller for Trajectory Tracking of Robot Manipulator,” **Intelligent Control and Automation (ICA) Vol. 2 No. 4, November, 2011.**
35. K. Ramakrishnan and **Goshaidas Ray**, “ Robust H_∞ Controller Synthesis for linear Uncertain systems with interval time-delay : A less Conservative Result” **International J of Control Automation**, vol.4, no.4, 2011.
36. Rajeeb Dey, **Goshaidas Ray**, S Ghosh and A Rakshit, “State feedback stabilization of uncertain linear time-delay systems: A nonlinear matrix inequality approach”, **Numerical Linear Algebra with Application**, vol.18., no.3, 351-361, 2011.
37. Rajeeb Dey, **Goshaidas Ray**, S Ghosh and A Rakshit, “Stability analysis of continuous system with time-varying delays”, **J of Applied Mathematics and Computation**, vol. 215, pp. 3740-3745, 2010.
38. S. Patra, S Sen and **Goshaidas Ray**, “ Robust control of uncertain LTI plant with input saturation: H_∞ loop-shaping approach”, **Int. J of System Sci.**, vol.41, no.11, pp. 1337-1351, 2010.
39. Sandip Ghosh, S.K.Das and **Goshaidas Ray**, “Stability analysis of interconnected time-delay systems in a generalized framework”, **IET Control Theory & Applications**, Vol. 4, No.12 , pp. 3022 - 3032 , 2010.
40. S. Patra, S Sen and **Goshaidas Ray**, “ Pre-compensator selection for H_∞ loop shaping control” **Int. J of Control, Automation and Systems**, vol.8, pp. 45-51, 2010.

41. Sandip Ghosh, S.K.Das and **Goshaidas Ray**, “Decentralized stabilization of uncertain systems with interconnections and feedback delays”, **IEEE-Trans. AC**, **54**, no.4, pp. 905-912, 2009.
42. Sandip Ghosh, S.K.Das and **Goshaidas Ray**, “Stabilizing adaptive controller for uncertain dynamical systems: AN LMI approach”, **Int. J of Control, Automation, and Systems**, **7**, No.2, April, 2009.
43. S. Patra, S Sen and **Goshaidas Ray**, “Design of static H_∞ loop-shaping controller in four-block frame work using LMI Approach”, **Automatica**, **44**, 2214-2220, 2008.
44. W.C. A Kishore, S Sen, **Goshaidas Ray** and T.K. Ghosal, “Control allocation for tracking time-varying control demand”, **J of Guidance, Control, and Dynamics**, **31**, 1150-1157, 2008.
45. S. Patra, S Sen and **Goshaidas Ray**, “Design of Robust load-frequency controller: H_∞ loop-shaping Approach”, **Electric Power Components and Systems**, vol.35, 7,, 2007.
46. **Goshaidas Ray**, Sitanshu Dey, and T.K. Bhattacharyya, “Reaching condition for variable structure output feedback controller using a search technique”, **Int. J. of System Sci.**, vol.37, pp.455-462, 2006.
47. **Goshaidas Ray**, Sitanshu Dey, and T.K. Bhattacharyya, “Design of variable structure controller using Fuzzy PI type sliding surface: An Application to load frequency control problem”, **Int. J. Emerging Electric Power Systems**. vol.7, pp1-9, 2006.
48. **Goshaidas Ray**, Sitanshu Dey, and T.K. Bhattacharyya, “Multi-area load frequency control of power systems: A decentralized variable structure approach”, **Electric Power Components and Systems**, volume-33, no.3, March, 2005.
49. **Goshaidas Ray**, Sitanshu Dey, and T.K. Bhattacharyya, “Design of reaching phase for variable structure controller based on Householder transformation”, **Kybernetika.**, vol.41, pp.601-622, 2005.
50. **Goshaidas Ray** and Sitanshu Dey, “Design of reaching phase for variable structure controller based on SVD method”, **Kybernetika**, vol.40, pp. 233-256, 2004.
51. D Baksi, K.B. Dutta and **Goshaidas Ray**, “Necessary and sufficient conditions for stabilization of expanding systems servomechanism problems”, **Kybernetika**, vol.39, 2003.
52. D Baksi, K.B. Dutta and **Goshaidas Ray**, “Existence of pole-zero structures in a rational matrix equation arising in a decentralized stabilization of expanding systems”, **Kybernetika**, vol.-38, No.2, 2002.
53. **Goshaidas Ray** and C. Susma Rani, “Decentralized robust stabilization and control of interconnected uncertain discrete time systems”, **Int. J. of Syst. Sci.**, Vol.32, No.3, 2002.
54. **Goshaidas Ray** and C. Susma Rani, “Stabilizing decentralized robust controllers of interconnected uncertain power systems based on the Hessenberg form: simulated results”, **Int. J. of Syst. Sci.**, Vol.32, No.3, 2001.
55. D. Baksi, V.V.Patel, K.B.Datta and **Goshaidas Ray**, “Decentralized stabilization and strong stabilization of a bicoprime factorized plant”, **Kybernetika**, Vol.35, No.2, 1999.

56. **Goshaidas Ray**, A.N. Prasad and G.D Prasad, "A new approach to the design of robust load-frequency controller for large scale power systems", **Electric Power Systems research**, Vol.51, 1999.
57. **Goshaidas Ray**, A.N. Prasad and T.K.Bhattacharyya, " Design of decentralized robust load-frequency controller based on SVD method", **Computer and Electrical Engineering**, Vol.25, 1999.
58. **Goshaidas Ray**, Brundabati Dhal and G.D Prasad, "Stabilization of a class of interconnected systems using aggregation model via Schur approach" , **Electric Machines and Power Systems**, Vol.25, No.8, 1997.
59. G Durga Prasad, Mubarak A. Al-Mulhim, **Goshaidas Ray** and B Gopichand, "Comparative assessment of the effect of dynamic load models on voltage stability", **Electric Power and Energy Systems**, Vol.19, No.5, 1997.
60. **Goshaidas Ray** and Subimal De, "On-line parameter estimation and two-level control of large scale discrete time systems" , **Kybernetika**, Vol.33, No.4, 1997.
61. **Goshaidas Ray**, Brundabati Dhal and G.D Prasad, "Stabilization of a class of interconnected systems using aggregation model via Schur approach" , **Electric Machines and Power Systems**, Vol.25, No.8, 1997.
62. **Goshaidas Ray**, Narri Yadaiah and G.D Prasad, "Design of a load frequency regulator based on the Schur approach", **Electric Power Systems Research**, Vol.36, 1996.
63. **Goshaidas Ray**, A.N. Prasad and G.D Prasad, "Design of a robust load-frequency controller for interconnected power systems based on the singular-value decomposition method", **Electrical Power Systems Research**, Vol.37, 1996.
64. **Goshaidas Ray** and Subimal De, "On-line parameter identification and design of multivariable discrete time regulator based on innovation model", **Mathematical Modelling of Systems**, Vol.2, No.1, 1996.
65. D. Baksi, K.B. Dutta and **Goshaidas Ray**, "Parallel algorithm for pole assignment of multi-input systems", **IEE Proc. Control Theory Appl.**, Vol.141, No.6, 1994.
66. **Goshaidas Ray** and Brundabati Dhal, "Singular perturbation model based output controller for a class of systems via Schur decomposition", **Smart Mater. Struct.**, Vol.3, 1994.
67. **Goshaidas Ray** and L.Subrahmanyam, "Modelling hierarchical dynamic systems for decentralized state estimation", **Control and Cybernetics**, Vol.22, No.3, 1993.
68. **Goshaidas Ray** and A Bakre, "Decentralized control of large-scale systems based on canonical representation" , **Smart Mater. Struct.**, Vol.1, 1992.
69. **Goshaidas Ray** and Narri Yadaiah, "Decentralized control of continuous time interconnected stochastic systems based on successive pole assignment", **Smart Mater. Struct.**, Vol.1, 1992.
70. **Goshaidas Ray** and Anil Kumar, "Decentralized Adaptive PI control strategies for frequency control of interconnected systems", **Kybernetika**, Vol.27, No.5, 1991.

71. **Goshaidas Ray** and P Rama Mohan Rao, “On-line identification and control of multi-variable discrete time systems based on a transformed model”, **Int. J. of Systems Sci., Vol.21, No.1, 1990.**
 72. **Goshaidas Ray**, “On-line state and parameter estimation of multivariable systems based on transformed model”, **Int. J. of Systems Sci., Vol.20, No.1, 1989.**
 73. **Goshaidas Ray** and Anil Kumar, “Decentralized load-frequency control of interconnected power systems with prescribed eigenvalues”, **Cybernetics and Systems: An Int. Journal, Vol.20, 1989.**
 74. **Goshaidas Ray**, “On the decentralized stabilization of interconnected discrete time systems”, **Kybernetika, Vol.23, No.6, 1987.**
 75. A.K.Mahalanabis and **Goshaidas Ray**, “Modelling large power systems for efficient load-frequency control” , **Mathematical Modelling, Vol.7, 1986.**
 76. A.K.Mahalanabis and **Goshaidas Ray**, “Efficient algorithm for the optimal control of interconnected stochastic systems” , **IEE Proc., Vol.131, Pt.D, No.3, May 1984.**
 77. A.K.Mahalanabis and **Goshaidas Ray** “On the state estimation of large-scale systems in the discrete time domain” , **Large Scale Systems, Vol.3, 1982.**
 78. A.K.Mahalanabis and **Goshaidas Ray** “On the state estimation of large-scale continuous time linear systems” **IEE Proc., Vol.128, Pt.D, No.4, July, 1981.**
-

D2. Complete List of Publications National Journal (in reverse Chronology) for the period 2016-1987: No of publication in National Journal: 9

1. A Dwivedi, Arun K Sharma and **Goshaidas Ray** “Genetic algorithm based decentralized PI Type controller: Load frequency control,” **J of the Inst. Of Engineers, Series D, 2016.**
2. Leena G, K.B. Dutta and **Goshaidas Ray**, “A set of stabilizing PD controllers: An application to robot manipulator” **J of the Inst. Of Engineers, Series B. , vol. 96(1), pp. 27-35, 2014.**
3. Leena G, K.B. Dutta and **Goshaidas Ray**, “ A set of Decentralized PID Controllers for an n-Link Robot Manipulator”, **Sadhana J, Indian Academy of Science, vol. 37 , issue-3, no.6, pp. 405-423, 2012.**
4. Leena G, K.B. Dutta and **Goshaidas Ray** “A set of stabilizing controller for a MIMO nonlinear system,” **M R Int. J of Engg. and Technology, (India),vol.1, 46-55, July, 2008.**
5. **Goshaidas Ray**, S.K. Das and B Tyagi, “Stabilization of inverted pendulum via fuzzy control,” **IE(I) J-EL, vol.88, September, 2007.**
6. A.J Mehta, **Goshaidas Ray**, S.K.Das and T.K. Bhattacharyya, “ An application of fuzzy logic controller to Twin Rotor MIMO system: Experimental Results,” **J of Systems Sci. and Engineering, vol.15, June, 2007.**

7. **Goshaidas Ray**, A Khalate, S.K.Das and T.K. Bhattacharyya, "Stabilization of inverted cart – pendulum system based on T-S fuzzy model: Simulation and Experimental," **IE(I) J-EL vol.87, June, 2006.**
8. A Khalate, S.K.Das and **Goshaidas Ray**, "Stabilization of inverted pendulum system based on fuzzy model and linear matrix inequality," **Paritantra System society of India, vol.10, pp. 29-35, 2004.**
9. **Goshaidas Ray**, "Decentralized control of large-scale discrete time systems based on quadratic performance index," **IE(I), E-T division, Vol.68, 1987.**

D3. Complete List of Publications Int. Conference (in reverse Chronology) for the period 2016-1986: No of publication in Int. Conference: 43

1. Ankit Deshmukh, Venkatesh M and **Goshaidas Ray**, "An Enhanced IAF-MPNLMS Algorithm for Sparse System Identification"- **ICC, 4-6 Jan., Kanpur, India, 2018.**
2. Venkatesh M, Sourav Patra and **Goshaidas Ray**, "Stabilization of Uncertain Linear System with Time-varying Delay using a New Lyapunov-Krasovskii Functional" - **TENCON, Oct., 28-31, Korea, 2018.**
3. Venkatesh M, Sourav Patra and **Goshaidas Ray**, "Robust Controller Design Method for Linear Systems with Parametric Uncertainty using Minimum Eigenvalue Approach" -**ACODS , Hyderabad, Feb., 18-22, 2018.**
4. Ankit Deshmukh, K. Ramakrishnan and **Goshaidas Ray**, "Improved Convergence of an Adaptive Identification Algorithm for Large Sparse System" **ICECE-2016- Conf., December 20-22, 2016, BUET, Dhaka, Bangladesh.**
5. Rajeeb dey, Sadip Ghosh, Eva Gyurkovics and **Goshaidas Ray**, "Delay-Dependent Stability Criterion for Linear Systems with Time-Varying State Delay" **8th IFAC Symposium on Robustness <http://www.karnatakaholidays.net/> Control Design, ROCOND'15, July 8-11, 2015, Bratislava, Slovak Republic.**
6. K. Ramakrishnan and **Goshaidas Ray**, "Robust Stability Criterion for Linear Systems with Additive State-Delays and Bounded Nonlinearity" **ICC-2015, January, 5-7, 2015, IIT Madras, Chennai, India.**
7. Nilanjan Mukherjee, T.K. Bhattacharya and **Goshaidas Ray**, "Robust Stabilization of Uncertain T-S Fuzzy systems: An Integral Error based Sliding Surface design" **5th International Conference on Fuzzy and Neural Computing (FANCCO 2015), Hyderabad, 17th.- 19th. Dec., 2015, India.**
8. K. Ramakrishnan and **Goshaidas Ray**, "New Results on Delay-dependent Robust Stability of Interval State-Delayed Linear Systems with Nonlinear Perturbations" **3rd. Int. Conf. on advances in Control and optimization of Dynamical Systems" ACODS -2014, March 13-15, IIT Kanpur, India, published in IFAC on-line papers.**

9. Amol A khalate, Rajeeb Dey and **Goshaidas Ray** “Robust Control of Robot Manipulator Based on Estimation of Upper Bounds on Parametric uncertainties” **ICECE-2014- Conf., December, 20-22 Dec., 2014, BUET, Dhaka, Bangladesh.**
10. K.J. Binoo, S Sengupta and **Goshaidas Ray** “ Design of Non-fragile Controller for Motion Control of Robot Manipulator” ” **ICECE-2014- Conf., December 20-22, 2014, BUET, Dhaka, Bangladesh.**
11. Sandip Ghosh, S. K. Das and **Goshaidas Ray**, “Decentralized Mixed Delay-Dependent/Delay-Independent Stabilization of Interconnected Time-Delay Systems” **13th-IFAC symposium on Large-Scale Complex Systems Theory and Applications, LSS , Shanghai, China, 7-10, July , 2013.**
12. Rajeeb Dey, V. E. Balas, T.C. Lin and **Goshaidas Ray**, “Improved Delay-range-dependent Stability Analysis of a T-S Fuzzy System with Time Varying Delay” **IEEE Int. Symposium on Computational and Intelligence and Informatics, 19-21 Nov., 2013, Badapest, Hungary.**
13. K. Ramakrishnan and **Goshaidas Ray**, “Robust Stability Criteria for Uncertain Discrete-time Lur’e Systems with Time-varying State-Delay and Sector-bounded Nonlinearity” **Multi Systems Conference, Hyderabad International Convention Centre, Hyderabad, 28-30 August 2013, India.**
14. K. Ramakrishnan and **Goshaidas Ray**, “Reciprocal Convex Approach to Delay-Dependent Stability of Uncertain Discrete-Time Systems with Time-Varying Delay” **American Control Conference - 2012, June 27-29, Fairmont Queen Elizabeth, Montreal, Canada.**
15. K. Ramakrishnan and **Goshaidas Ray**, “ Robust H_∞ filter design for a class of uncertain systems with time-varying state-delays” **7th. Int. Conf. on Elect. And Computer Engineering, Dhaka, 20-22 December, 2012.**
16. K. Ramakrishnan and **Goshaidas Ray**, “Robust Controller Synthesis for a Class of Uncertain Linear Systems with Interval Time-Varying Delay “ **Conference on “Advances in Control and Optimization of Dynamical Systems (ACODS) – 2012”, 16-18 February, 2012, at IISc, Bangalore,India.**
17. K. Ramakrishnan and **Goshaidas Ray**, “Delay dependent non-fragile ~~robust~~ control for a class of uncertain stochastic nonlinear systems” **Int. conf. on Industrial and Information Systems (ICIIS)-2012, Chennai, 6-9 August, 2012.**
18. Rajeeb Dey, S. Ghosh, **Goshaidas Ray**, A. Rakshit, “Further Result on Delay-Dependent Stability Analysis of a Linear Retarded System with Time Varying Delay” **Conference on “Advances in Control and Optimization of Dynamical Systems (ACODS) – 2012”, 16-18 February, 2012, India.**
19. Rajeeb Dey, S Ghosh, **Goshaidas Ray**, and A Rakshit “New delay dependent stabilization result for linear system with actuator saturation” **Int. Conf. On Power, Signals, Control and Computations, Thrissur, Kerala, India, January, 3-6, 2012.**
20. K. Ramakrishnan and **Goshaidas Ray**, “Delay-range-dependent stability criteria for Luré systems with interval time-varying delay,” **IEEE CDC 2010, Atlanta, GA, USA, December 15-17, 2010.**
21. Rajeeb Dey, Nishant Sinha, Priyanka Chaubey, S Ghosh and **Goshaidas Ray**, “Active sway control of a single pendulum gantry crane system using output delayed feedback control technique” **11th.**

Int. Conference Control, Automation, Robotics and Vision, ICARCV2010, 7-10 Dec., 2010, Singapore.

22. K J. Binoo and **Goshaidas Ray**, “Trajectory Tracking of a two-link robot manipulator: A terminal attractor approach”, **6th. International conference on electrical and computer engineering, ICECE-10, 18-20 Dec., 2010, Dhaka, Bangladesh.**

23. K. Ramakrishnan and **Goshaidas Ray**, “An improved delay-dependent stability criterion for neutral systems with mixed time-delays and nonlinear perturbations,” **IEEE INDICON 2010, Jadvapur University, Kolkata, December 17-19, 2010.**

24. K. Ramakrishnan and **Goshaidas Ray**, “Further improvement in delay-range-dependent stability criterion for linear systems with time-varying delay”, **IEEE INDICON 2010, Jadvapur University, Kolkata, December 17-19, 2010.**

25. K. Ramakrishnan and **Goshaidas Ray**, “Robust stability criterion for linear systems with interval time-varying delay,” **International Conference on System Dynamics and Control, MIT, Manipal, Vol. 1, pp. 1-6, August 19-22, 2010.**

26. K. Ramakrishnan and **Goshaidas Ray**, “Delay-dependent robust stability criteria for linear uncertain systems with interval time-varying delay,” **IEEE TENCON 2009, Singapore, November 23 – 26, 2009.**

27. K. Ramakrishnan and **Goshaidas Ray**, “Delay-dependent stability criteria for linear systems with multiple time-varying delays”, **IEEE TENCON 2009, Singapore, Nov. 23 – 26, 2009.**

28. A Sengupta, S. Sen and **Goshaidas Ray**, “ Control allocation schemes for a satellite Launch vehicle with inclusion of actuator slew rate limits,” **Proc. of 2009 Int. Automatic Control Conf. (CACCS), National Taipei Univ. of Tech., Taipei, Taiwan, Nov. 27-29, 2009.**

29. K. Ramakrishnan and **Goshaidas Ray**, “Delay-dependent stability analysis of linear systems with additive time-varying delays,” **IEEE International Conference on Automation Science and Engineering CASE 2009, Aug. 22-25, 2009, Vol. 1, pp. 122-126, IISc, Bangalore.**

30. K. Ramakrishnan and **Goshaidas Ray**, “Robust stability criteria for uncertain linear systems with time-varying delay,” **4th. International Conference on Trends in Measurements and Automation TIMA 2009, January 4 – 6, 2009, MIT, Chennai.**

31. Leena G, K.B.Dutta and **Goshaidas Ray**, “ A set of stabilizing PD controllers for MIMO systems,” **5th. Int.Conf. on Elect. and Comp. Engineering (ICECE)-2008, BUET, Dhaka, Banglash, 861-866, 2008.**

32. W.C. A. Kishore, S Sen, **Goshaidas Ray**, “ Disturbance observer based performance improvement of H_{∞} controller,” **IEEE-10, Colloquium and 3rd. Int. conf. on Industrial, Information Systems.(ICIIS-2008), Kharagpur, India.**

33. Rajeeb Dey, S Ghosh and **Goshaidas Ray**, “Delay-dependent stability analysis of linear system with time-varying state delay,” **IFAC, MCPL, Romania, 27-30, August, 2007.**

34. Rajeeb Dey, S Ghosh and **Goshaidas Ray**, "Delay-dependent stability analysis of linear system with multiple delays," **ICIIS, 2007, Sri-Lanka, 2007.**
 35. Rajeeb Dey, S Ghosh and **Goshaidas Ray**, "Delay-dependent stability and stabilization for linear systems: Delay in States," **Int. Conf. on Modeling and Simulation, Coimbatore, 27-29, August, 2007.**
 36. W.C.A. Kishore, S. Sen and **Goshaidas Ray**, "Disturbance rejection and control allocation of over-actuated Systems," **IEEE Int. Conf. on Industrial Technology, Mumbai, India, 2006.**
 37. Leena G, K.B.Dutta and **Goshaidas Ray**, "A class of stabilizing industrial controllers based on Lyapunov stability approach," **Int. Conf. on EAIT-2001, I.I.T Kharagpur, India, Dec., pp.372-375, 2001.**
 38. **Goshaidas Ray**, S.K.Das and T.K.Das, "A neuro- controller paradigm for control of dynamic systems," Int. Conf. on EAIT-2001, I.I.T Kharagpur, India, Dec., pp.201-204,2001.
 39. **Goshaidas Ray** and L. Subrahmanyam, "Modelling hierarchical dynamic systems for decentralized output estimation," **Advances in Modelling and Simulation, vol.35, No.2, pp.31-46, 1992, France.**
 40. **Goshaidas Ray** and M.S.Phatak, "Efficient two-level control structure for a class of large-scale discrete time systems", **Advances in Modelling and Simulation, vol.14, No.1, pp.37-52, 1988, France.**
 41. **Goshaidas Ray** and Anil Kumar, "Decentralized estimator based controller for a class of large scale continuous time systems with prescribed degree of stability", **Advances in Modelling and Simulation, vol.18, No.3, pp.1738, 1988, France.**
 42. **Goshaidas Ray** and M.S.Phatak, "Observer based multi-level control structure of large scale systems with state feedback," **First Symposium on Electric Power Systems in Fast Developing Countries, March 21-24, 1987, Saudi Arabia.**
 43. **Goshaidas Ray** and M.S.Phatak, "Some basic schemes on decentralized state reconstruction of large-scale systems in the discrete time domain," **IFAC Symposium, December 15-17,1986, Bangalore, India.**
-

D4. Complete List of Publications National Conference (in reverse Chronology) for the period 2002-1986: No of publication in National Conference: 6

1. **Goshaidas Ray** and A Dwivedi, "Decentralized state estimation of interconnected systems based on genetic algorithm: An application to power system, **NPSC-2002, IIT-Kgp, December. 27-29, 2002.**
2. Leena G., K.B.Datta and **Goshaidas Ray**, "A class of stabilizing PD controllers for robotic manipulators," 24th. National Systems Conference, 7th.-9th. **December, 2000, Bangalore, India.**
3. **Goshaidas Ray** and Sitansu dey, "Reduced-order switching of variable structure sliding mode controller based on SVD method", 24th. National Systems Conference, **7th.-9th. December, 2000, Bangalore, India.**

4. **Goshaidas Ray** and A.Bakre, “Decentralized state estimation of large scale systems on the basis of a canonical representation,” 13th. National System Conference, **December 13-15, 1989, I.I.T Kharagpur, India.**
 5. **Goshaidas Ray** and M.S.Phatak, “ An efficient algorithm for decentralized state reconstruction of large-scale system,” **National Seminar on Recent trends in Electric Energy Systems, May 21-23, 1986, I.I.T Delhi, India.**
 6. S.Sen and **Goshaidas Ray**, “Stabilization of two time-scale discrete systems with multirate state feedback,” **National System Conference, December 21-23, 1986, I.I.T Delhi, India.**
-

E. Guidance at Doctoral Level: 8

1. “Robust stability analysis and stabilization of uncertain linear time-delay systems” Venkatesh M (Supervisors- Sourab Patra and **Goshaidas Ray, 2020**) .
 2. “LMI based H_∞ optimal 2-rate compensation of LDTI plants using Intrinsic zero-placement” - Ankesh K Agarwal (Supervisors- S.K. Das and **Goshaidas Ray, 2021 (candidate will appear for the thesis defence in Feb., 2021)**)
 3. “Robust Stability and Stabilization of Interval State-Delayed Systems”, Ramakrishnan (Supervisor:- **Goshaidas Ray, 2014**)
 4. “Stability and Stabilization of a Linear Systems with Time Varying Delays in the States” Rajeeb Dey (Supervisors- **Goshaidas Ray** and Anjan Rakshit), (Jadavpur University, Kolkata, **2012**).
 5. “Decentralized Stabilization of Interconnected Systems with Time-Delays”, S Ghosh (Supervisors- **Goshaidas Ray** and S. K. Das, **2010**).
 6. “Linear Matrix Inequality Approach to H_∞ loop shaping Control Problem”, S Patra (Supervisors- **Goshaidas Ray** and S Sen, **2008**).
 7. “A class of stabilizing controllers for multi-variable dynamic system”, Leena G, (Supervisors - **Goshaidas Ray** and K.B.Datta, **2007**).
 8. “Decentralized stabilization and control of expanding systems”, D.Baksi (Supervisors - **Goshaidas Ray** and K.B.Datta, **1995**).
-

F. Guidance at Master Level Project in area of control theory and application: No of M. Tech. Project Guided: 38

1. Rajat Kumar [2016, May] “ Stability analysis and stabilization of the time delay systems”.

2. Nilanjan Mukherjee [2015, Dec.] Robust stabilization of uncertain T-S fuzzy systems: An integral error based sliding surface design approach”.
3. Ankit Deshmukh [2013, May] “ Improved adaptive algorithms for sparse system identification’.
4. Asmita Bose [2013, May] “ Design and implementation of sparse filter”. (Co-Supervisor . Prof. S Sengupta)
5. Ragesh R [2012, May] “Stabilization of Inverted Pendulum System Based on Sliding Mode Approach With Delayed Input”.
6. Arun Joseph [2012, May] “Design of Robust Controller For Twin Rotor MIMO System’.
7. Rahul Jayasimha Kuchana [2011, May] “Robust Sliding Mode Control Of Uncertain Time Delay Systems: An Application To Load-Frequency Control”.
8. Arun K Sharma [2011, May] “Estimator based robust stabilization of uncertain networked control system”.
9. Nese Raghavendra [2011, May] “Stabilization of Inverted Pendulum Systems Via T-S Fuzzy Controllers “.
10. P Sivaprasad [2010, May] “Mathematical modeling and design of controllers for quadruple coupled tank system”.
11. Dipali Pattanaik [2010, May] “Design of decentralized dynamic output feedback controller for a class of interconnected system via LMI approach”.
12. Kaushik Sah [2009, May] “Dynamic fusion of visual cues for robust object tracking” . Co-Supervisors : Prof. J. Adamy & Chen Zhang)
13. D.R. Md. Rafi [2008, May] “ Estimation of domain of attraction of time delay systems with actuator saturation”.
14. Rajeeb Dey [2007, May] “ Stability and stabilization of a class of linear time -delay system”.
15. Arnab Maity [2006, May] “Sliding mode control of multivariable system: Applications to linear and nonlinear systems”. (Co-Supervisor Prof.: S.K.Das)
16. K J Binoo [2006, May] “ Design of robust control strategy: An Application to two link robot manipulator”.
17. Pragati Mandal [2005,May] “ Trajectory tracking of Two-link Robot Manipulator”.
18. A Swarnakar [2004, May] “Identification and robust controller design of a drive train model” (Jointly Prof. Uwe Kiencke)
19. Amol A Khalate [2004, May) “Stabilization and trajectory tracking of a class of nonlinear systems”. (Co-sSupervisor : Prof. S.K.Das)

20. A. A. F Ansari [2002, Dec.] "Fault tolerant control of satellite launch vehicles using LMI techniques". (Co-Supervisor : Prof. S Sen)
21. A. J. Mehta [2001, Dec.] "Design and implementation of fuzzy logic controller: An application to twin rotor MIMO system".
22. T.K.Das [2000, Dec.] "Up-right stabilization of an inverted pendulum cart system using neuro controller". (Co-Supervisor: Prof. S.K.Das)
23. A.Shukla [2000, Dec.] "Stabilization of D.C. attracted type levitation system". (Co-Supervisor: Prof. T.K. Bhattacharyya)
24. B.Tyagi [1999, Dec.] "Stabilization and control of an inverted pendulum cart system based on intelligent controller". (Co-Supervisor: Prof. S.K. Das).
25. D. R. Shinde [1999, Dec.] "Design of discrete variable structure controller for an uncertain continuous system".
26. A. Dwivedi [1998, Dec.] "Control and state estimation of dynamic system using genetic algorithm".
27. C.S. Rani [1997, Dec.] "Robust control via state feedback for uncertain dynamical systems".
28. M. Fakruddin [1996, Dec.] "Application of intelligent controller to multi-variable dynamic systems".
29. A. Nageswara Prasad [1994, Dec.] "Robust controller design for an interconnected system via lyapunov method".
30. Subimal De [1993,Dec.] "On-line identification of system parameters and linear regulators".
31. B.Dhal [1992, Dec.] "Stabilization via output feedback of interconnected dynamical systems".
32. N.Yadaiah [1990, Dec.] "Design of multivariable control systems by successive pole assignment".
33. A.Bakre [1989, Dec.] "Decentralized state estimation and control of interconnected systems".
34. L.Subramanyam [1988, Dec.] "Some algorithms for on-line state and output estimation of interconnected systems"
35. A. Kumar [1987,Dec.] "Decentralized control of interconnected dynamic continuous time systems".
36. P.Rama Rao [1986, Dec.] "Some algorithms for on-line identification and control of discrete time multivariable systems".
37. P. K. Basak [1985, Dec.], "Decentralized stabilization and control of large-scale systems".

38. M.S.Phatak [1985, Dec.], “Efficient algorithms for decentralized state estimation and control of large-scale systems”

G. MS Projects Supervised: 2

1. A Sengupta [2011, May] “ Control Allocation and Design of controller for a satellite Launch vehicle”. (Co-supervisor: Prof. S Sen)
 2. Sitansu Dey [2002, May] “Control of Uncertain Dynamic Systems via Variable Controller with Sliding Modes”
-

H. Consultancy and Sponsored Project Work:

1. Title of the project with code: Design of Robust Biochemical Network (project Code: DRB, CSIR, HRDC, New-Delhi), (Period: April, 2012 to April, 2015) Completed and report submitted on 22th. July, 2015. (**PI Prof. Goshaidas Ray** & Co-PI: Prof. A Mukhejee)
 2. “Attitude Control of Launch Vehicles “, ISRO, IIT Kharagpur Cell, PI : Prof. S. K. Das, Co PI: **Prof. G Ray** (2012)
 3. “Design of an optimal Control Strategy for GSLV-MK3 (OCL)” --.KCST Cell and ISRO Project, VSSC, Trivandrum. (2010) (**PI Goshaidas Ray** (PI), S Sen, and A Patra)
 4. “Fault Tolerant Control of Satellite Launch vehicles”—ISRO Project, Bangalore (2006) (A Patra (PI), Co-Pis: S Mukherjee, S Sen and **Goshaidas Ray**)
 5. “Air Gap Controller for Electro-Magnetic Levitation”--. BHEL Sponsored Project (2003). D Prasad (PI), T.K.Bhattacharya (Co-PI), (Associated with them).
 6. “Study and Development of real-time, Intelligent Controllers based on Neuro-Fuzzy Techniques,” AICTE TAPTEC-Project (2001) (Prof .S.K.Das (PI) and Co-PI **Prof.Goshaidas Ray**).
 7. “Feasibility study of contact motion analysis” Naval Science and Technology Lab (NSTL), Visakhapatnam. (1993) (Prof.S.K.D as (PI), Co-Pis: Prof. A.Patra, Prof. **Goshaidas Ray**).
-

