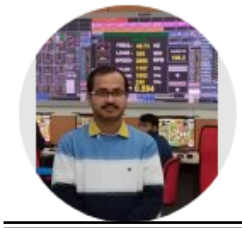

Dr. Dipayan Guha

Motilal Nehru National Institute of Technology, Allahabad
Verified email at mnnit.ac.in
Adaptive Control Cyber Physical Systems Multi-Agent Systems Intelligent Control

Summary:

International Journals: Published/Accepted – **39**

International Conferences: 33 **National Conferences: 3**

Book: 1 (**International: Springer**) **Book chapter:** 5

Citation: **2446** (h-index: 25, i-10 index: 39) [Google Scholar]
[https://scholar.google.co.in/citations?user=GmiruH0AAAAJ&hl=en]
Scopus id: 56567683700

1855 (h-index: 22) **[Scopus]**

IEEE	02	Elsevier	14	Wiley	05	Inderscience	04
IET	04	Springer	04	Taylor and Francis	03	IGI Global	02
MDPI	01						

Placed in the "World Ranking of top 2% Scientists" released by Stanford University in three consecutive years 2022, 2023, & 2024.

Thrust Area of Research:

- Cyber-Physical Systems and Control
- Multi-Agent Systems and Cooperative Control
- Nonlinear Control
- Artificial Intelligence and Soft Computing

International Book

1. **D. Guha, P.K. Roy, S. Banerjee, S. Purwar, *Application of Intelligent Control Algorithms to Study the Dynamics of Hybrid Power System*, Studies in Systems, Decision and Control, Springer Verlag, Singapore, ISBN 978-981-19-0443-1.**

International Journals

1. S. Roy, A.K. Chaudhary, **D. Guha**, and R. Negi, Adaptive Event-triggered Finite-time Control of Affine Cyber-Physical System under Denial-of-Service (DoS) and Deception Attacks, International Journal of Robust and Nonlinear Control, ***Wiley (SCI Journal with Impact Factor-3.2)***, *Accepted on Jan. 12, 2025)* ***[Q1 Journal]***.

2. K. Reddy, R. Sarma, and **D. Guha**, Performance Analysis of Advanced Metaheuristics for Optimal Design of Multi-Objective Model Predictive Control of Doubly Fed Induction Generator, Process, ***MDPI (SCI Journal with Impact Factor-2.8)***, Processes 2025, 13, 221, 2025 ***[Q2 Journal]***.

3. A. Anand, **D. Guha**, and S. Purwar, Adaptive Consensus Control of Leader-Follower Multi-Agent System with Actuator Deception Attacks, Chaos, Solitons and Fractals, ***Elsevier (SCI Journal with Impact Factor- 5.3)***, Accepted on July 29, 2024 ***[Q1 Journal]*.**

4. A.K. Chaudhary, S. Roy, **D. Guha**, *et al.*, *Adaptive Cyber-tolerant Finite-time Frequency Control Framework for Renewable-integrated Power System under Deception and Periodic Denial-of-Service Attacks*, Energy, ***Elsevier (SCI Journal with Impact Factor- 9)***, Vol. 302, Sep 2024, 131809, doi:10.1016/j.energy.2024.131809 ***[Q1 Journal]*.**

5. **D. Guha**, *Fuzzy-aided Finite-time Frequency Controller of Renewable-integrated Power Systems with Hydrogen Energy Storage*, Engineering Applications of Artificial Intelligence, ***Elsevier (SCI Journal with Impact Factor- 8)***, Vol. 126 (Part-A), 106814, Nov. 2023. *doi: 10.1016/j.engappai.2023.106814* ***[Q1 Journal]*.**

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7. **D. Guha**. *Non-integer disturbance observer-aided resilient frequency controller applied to hybrid power system,* Chaos, Solitons and Fractals, ***Elsevier (SCI Journal with Impact Factor- 7.8)***, vol. 170, 113421, May 2023, *doi: 10.1016/j.chaos.2023.113421* ***[Q1 Journal]*.**

8. **D. Guha**, P.K. Roy, and S. Banerjee, *Frequency Control of a Wind-diesel-generator Hybrid System with Squirrel Search Algorithm Tuned Robust Cascade Fractional Order Controller Having Disturbance Observer Integrated*, Electric Power Components and Systems, ***Taylor and Francis (SCI Journal with Impact Factor-1.59),*** *vol. 50(14-15), pp. 814-839, 2022****,*** *doi: 10.1080/15325008.2022.2141925* ***[In Press]*** ***[Q4 Journal]*.**

9. **D. Guha**, P.K. Roy, and S. Banerjee, *Adaptive fractional-order sliding-mode disturbance observer-based robust theoretical frequency controller applied to hybrid wind-diesel power system*, ISA Transaction, ***Elsevier (SCI Journal with Impact Factor-5.468),*** *vol. 133, pp. 160-183, Feb 2023****,*** *doi: 10.1016/j.isatra.2022.06.030* ***[Q1 Journal]*.**

10. V. Patel, **D. Guha**, and S. Purwar, *Frequency Regulation of Nonlinear Power Systems using Neural Network Observer-based Optimized Resilient Controller*, International Transactions on Electrical Energy Systems, ***Wiley (SCI Journal with Impact Factor-1.692),*** *vol. 35, Issue 5, Sep/Oct 2023****,*** *doi: 10.1002/jnm.3025* ***[Q3 Journal]*.**

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12. V. Patel, **D. Guha**, and S. Purwar, *Neural Network aided Fractional-Order Sliding Mode Controller for Frequency Regulation of Nonlinear Power Systems*, Computers and Electrical Engineering, ***Elsevier (SCI Journal with Impact Factor-3.818),*** Vol. 96, Part-A, December 2021, 107534, doi: *10.1016/j.compeleceng.2021.107534* ***[Q2 Journal]***.

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15. **D. Guha**, P.K. Roy, and S. Banerjee, *Equilibrium optimizer tuned cascade fractional-order 3DOF-PID controller in load frequency control of power system having renewable energy resource integrated*, International Transactions on Electrical Energy Systems, ***Wiley (SCI Journal with Impact Factor- 1.692)***, Vol. 31, Issue 1, January 2021, e12702, *doi: 10.1002/2050-7038.12702* ***[Q3 Journal]***.

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17. **D. Guha**, P.K. Roy, S. Banerjee, S. Padmanaban, F. Blaabjerg, and D. Chittathuru, *Small-signal stability analysis of hybrid power system with quasi-oppositional sine cosine algorithm optimized fractional order PID controller*, IEEE Access, ***IEEE (SCI Journal with Impact Factor- 3.745)***, Vol. 8, August 2020, pp. 155971-155986, *doi: 10.1109/ACCESS.2020.3018620* ***[Q2 Journal]***.

18. **D. Guha**, P.K. Roy, and S. Banerjee, *Maiden application of SSA-optimised CC-TID controller for load frequency control of power systems*, IET Generation, Transmission and Distribution, ***IET (SCI Journal with Impact Factor- 3.229)***, Vol. 13(7), April 2019, pp. 1110-1120, *doi: 10.1049/iet-gtd.2018.6100* ***[Q3 Journal]***.

19. **D. Guha**, P.K. Roy, and S. Banerjee, *Multi Verse Optimization: a novel method for solution of load frequency control problem in power system*, IET Generation, Transmission and Distribution, ***IET (SCI Journal with Impact Factor- 3.229)***, Vol. 11(4), September 2017, pp. 3601-3611, *doi: 10.1049/iet-gtd.2017.0296* ***[Q3 Journal]***.

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26. **D. Guha**, P.K. Roy, and S. Banerjee, *Quasi-oppositional Backtracking Search Algorithm to Solve Load Frequency Control Problem of Interconnected Power System*, Iranian Journal of Science and Technology, Transactions of Electrical Engineering, ***Springer (SCI Journal with Impact Factor-0.657)***, Vol. 44, August 2019, pp. 781-804, *doi: 10.1007/s40998-019-00260-0* ***[Q3 Journal]***.

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28. **D. Guha**, P.K. Roy, and S. Banerjee, *Load frequency control of large scale power system using quasi-oppositional grey wolf optimization algorithm*, Engineering Science and Technology, an International Journal, ***Elsevier (SCI Journal with Impact Factor-5.7)***, Vol. 19, Issue 4, December 2016, pp. 1693-1713, *doi: 10.1016/j.jestch.2016.07.004.*

29. V. Patel, **D. Guha**, and S. Purwar, Frequency Regulation of Time-delayed Power System utilizing Nonlinear Resilient Controller, Int. J. of Automation and Control, **Inderscience *(Scopus***), vol. 18(1), pp. 87-109, Nov. 2023, *doi: 10.1504/IJAAC.2024.135096*.

30. V. Patel, **D. Guha**, and S. Purwar, Disturbance Observer-based Higher-order Sliding Mode Controller for Frequency Regulation of Hybrid Power Systems, Int. J. of Automation and Control, **Inderscience *(Scopus*)**, Vol. 17(2), January 2023, pp. 188-226, *doi: 10.1504/IJAAC.2023.129387*

31. **D. Guha**, P.K. Roy, and S. Banerjee, Quasi-oppositional Jaya Optimized 2-degree-of-freedom PID Controller for Load Frequency Control of Interconnected Power Systems, International Journal of Modelling and Simulation, **Taylor and Francis *(Scopus)***, Vol. 42(1), October 2020, pp. 63-85, *doi: 10.1080/02286203.2020.1829444*.

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33. **D. Guha**, P.K. Roy, and S. Banerjee, *Grasshopper optimization algorithm scaled fractional order PI-D controller applied to reduced order model of load frequency control system*, International Journal of Modeling and Simulation, **Taylor and Francis *(Scopus)***, Vol. 40(3), March 2019, pp. 217-242, *doi: 10.1080/02286203.2019.1596727.*

34. **D. Guha**, P.K. Roy, and S. Banerjee, *Symbiotic Organism Search Algorithm Applied to Load Frequency Control of Multi-area Power System, Energy System*, **Springer *(Scopus)***, Vol. 9, May 2018, pp. 439-468, *doi: 10.1007/s12667-017-0232-1*.

35. **D. Guha**, P.K. Roy, and S. Banerjee, *Oppositional biogeography-based optimization applied to SMES and TCSC-based load frequency control with generation rate constraints and time delay*, International Journal of Power and Energy Conversion, ***Inderscience (Scopus)***, Vol. 7, Issue 4, Jan 2016, pp. 391-23, *doi: 10.1504/IJPEC.2016.10000395.*

36. **D. Guha**, P.K. Roy, and S. Banerjee, *Solutions of UPFC based Load Frequency Control using Quasi-Oppositional Biogeography Based Optimization Considering Various Nonlinearities of Power System*, International Journal of Power and Energy Conversion, ***Inderscience (Scopus)***, Vol. 9, Issue 2, March 2018, pp. 105-143, *doi: 10.1504/IJPEC.2018.090674*.

37. **D. Guha**, P.K. Roy, and S. Banerjee, *Application of Modified Biogeography Based Optimization in AGC of an Interconnected Multi-Unit Multi-Source AC-DC Linked Power System*, International Journal of Energy Optimization and Engineering, ***IGI Global***, Vol. 5, Issue 3, 2016, pp. 1-18, doi: *10.4018/IJEOE.2016070101*.

38. **D. Guha**, P.K. Roy, and S. Banerjee, *Grey Wolf Optimization to Solve Load Frequency Control of an Interconnected Power System*, International Journal of Energy Optimization and Engineering, ***IGI Global***, Vol. 5, Issue 4, 2016, pp. 62-83, *doi: 10.1016/j.swevo.2015.10.004*.

39. **D. Guha**, P.K. Roy, and S. Banerjee, *Krill herd algorithm for automatic generation control with flexible AC transmission system controller including superconducting magnetic energy storage*

units, The Journal of Engineering, ***IET***, Vol. 2016, Issue 5, May 2016, pp. 147-161, *doi: 10.1049/joe.2016.0053*

Book Chapters

1. **D. Guha**, P.K. Roy, and S. Banerjee, *Robust optimization algorithms for solving automatic generation control of multi-constrained power system*, Handbook of Research on Power and Energy System Optimization, **IGI-Global,** Chapter 3, 2018, pp. 75-114, *doi: 10.4018/978-1-5225-3935-3.ch003*. [Scopus Indexed]

2. **D. Guha**, P.K. Roy, and S. Banerjee, *Dynamic and Stability Analysis of Wind-Diesel-Generator (WDG) with Robust and Intelligent Computation Control Algorithm*, Handbook of Research on Smart Power System Operation and Control, **IGI-Global,** Chapter 3, 2019, pp. 56-95, *doi: 10.4018/978-1-5225-8030-0.ch003*. [Scopus Indexed]

3. V. Patel, **D. Guha**, and S. Purwar, *Minimum order disturbance observer-aided integral sliding mode controller for frequency regulation of hybrid power system*, Control of Standalone Microgrid (ISBN 9780128230220), **Academic Press (Elsevier), Chapter** 12, 2021, pp. 277-296, *doi: 10.1016/B978-0-12-823022-0.00009-X*.

4. V. Patel, **D. Guha**, and S. Purwar, *Disturbance observer-aided adaptive sliding mode controller for frequency regulation in hybrid power system*, Microgrids: Modeling, Control, and Applications (ISBN 9780323854634), **Academic Press (Elsevier),** Chapter 2, 2022, pp. 43-66, *doi:10.1016/B978-0-323-85463-4.00001-0.*

5. **D. Guha** and S. Saringi, *Nonlinear resilient frequency controller for hybrid interconnected power system*, Advanced Frequency Regulation Strategies in Renewable-Dominated Modern Power Systems (AFRGRPS-2021), **Academic Press (Elsevier)**, Chapter 4, 2023, pp. 61-91, *doi: 10.1016/B978-0-323-95054-1.00014-7*.

6. A. Anand, **D. Guha** and S. Purwar, *Distributed Adaptive Fault-tolerant Consensus Control of Multi-agent Systems with Deception attacks*, Enhancing the Control of Systems and Devices: Improving Performance, Reliability and Adaptability in Dynamic Environments, **Academic Press (Elsevier)**, **Proposal Accepted on March 26, 2024**.

7. **D. Guha**, *Neural Network-observer based Adaptive Finite-time Frequency Control of Cyber-physical Power Systems*, Enhancing the Control of Systems and Devices: Improving Performance, Reliability and Adaptability in Dynamic Environments, **Academic Press (Elsevier)**, **Proposal Accepted on March 5, 2024**.

International Conferences [33]

1. P. Kumar, A. Anand, **D. Guha**, and S. Purwar, Leader-Follower Consensus Control of Multi-Agent Systems with Disturbance by Distributed Sliding Mode Control, **Accepted** in **2025 IEEE 1st Int. Conf. on Smart and Sustainable Developments in Electrical Engineering (SSDEE-2025)**, Feb 28 - March 2, 2025, IIT(ISM) Dhanbad.

2. P. Kumar, A. Anand, **D. Guha**, and S. Purwar, Second-Order Consensus in Heterogeneous Multi-Agent Systems by Distributed Sliding Mode Control, **Accepted** in **1st Int. Conf. on Sustainable Energy Technologies and Computational Intelligence (SETCOM 2025)**, February 21 – 23, 2025, Pandit Deendayal Energy University (PDEU), Gandhinagar, Gujarat, India.

3. S. Chaudhary, **D. Guha**, and R. Maiti, Backstepping-enabled Fixed-time Terminal Sliding Mode Control of Robot Manipolators, **Accepted** in Fourth Int. Conf. on Power, Control, and Computing Technologies (ICPC^{2}T), January 20-22, 2025, NIT Raipur, Chhattisgarh, India.

4. S. Kumar, B. Dash, R. Maiti, and **D. Guha,** Adaptive Fuzzy Predictor based Fast Terminal Sliding Mode Controller Design for Two-link Robot Manipulator, **Accepted** in 2024 Tenth **Indian Control Conference (ICC)**, December 9-11, 2024, IISER Bhopal.
5. S. Roy and **D. Guha**, Finite-time Controller of Cyber-Physical Affine System with Mismatched Uncertainty, **I**n Proc. of 2024 IEEE 4th International Conference on **Sustainable Energy and Future Electric Transportation (IEEE SeFeT 2024)**, 31 July - 03 August, 2024.

6. A. Anand, **D. Guha**, and S. Purwar, Cooperative Formation Control of the Multi-Agent System, In Proc. of 2024 IEEE 4th International Conference on **Sustainable Energy and Future Electric Transportation (IEEE SeFeT 2024)**, 31 July - 03 August, 2024.

7. S. Priyadarshi and **D. Guha,** Robust Tracking Controller of Nonlinear Twin Rotor MIMO System with Mismatched Uncertainties, **Accepted** in 2024 IEEE Students Conference on Engineering and Systems (SCES), June 21-23, 2024, Prayagraj, India, June 21-23, 2024.

8. A. Maurya and **D. Guha,** Design of Non-linear Sliding Mode Controller for Magnetic Levitation System, **Accepted** in 2024 IEEE Students Conference on Engineering and Systems (SCES), June 21-23, 2024, Prayagraj, India, June 21-23, 2024.

9. **D. Guha**, P.K. Roy, and S. Banerjee, Fractional-Order Cyber-tolerant Frequency Controller for Renewables-integrated Power System, In Proc. of 3rd IEEE International Conference on Smart Technologies for Power, Energy and Control (STPEC), KIIT University, Bhubneswar, Odisha, 10-13 December 2023.

10. **D. Guha**, Cyber-tolerant Resilient Frequency Control for Microgrid with Mismatched Uncertainties and Stealthy FDI-attack, In Proc. of 2023 IEEE 3rd International Conference on Sustainable Energy and Future Electric Transportation (SeFeT), S'O'A University, Bhubneswar, Odisha, 09-12 August 2023.

11. A. Anand, **D. Guha**, and S. Purwar, Adaptive Cooperative Control of the Multi-Agent System, In Proc. of 2023 IEEE 3rd International Conference on Sustainable Energy and Future Electric Transportation (SeFeT), Bhubaneswar, Odisha, 09-12 August 2023.

12. J. Saha, **D. Guha,** and S.K. Jha, Voltage Control of Power System employing Q-Learning based PID Controller, IEEE 19th India Council International Conference (INDICON 2022), CUSAT, Kochi, Kerala, 24-26 November, 2022.

13. A. Ghosh, A. Saxena, R. Singh, and **D. Guha**, Design and Performance Analysis of Model Reference Adaptive Controller (MRAC) applied to a Dynamical System, 9th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON-2022), IIIT Allahabad, 2-4 December 2022.

14. A. Verma, **D. Guha**, Disturbance Observer-based Resilient Controller for Nonlinear Maglev System, 9th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON-2022), IIIT Allahabad, 2-4 December 2022.
15. A. Verma, **D. Guha**, Fractional-order Robust Controller Applied to Nonlinear Dynamical System. In Proc. of IEEE 2nd Int Conf on Power, Control and Computing Technologies, NIT Raipur, March 1-3, 2022.

16. H. Garg, A. Srivastava, **D. Guha**, Frequency regulation of isolated microgrid using disturbance observer-based robust controller. 8th IEEE Uttar Pradesh Section Int Conf on Electrical, Electronics, and Computer Engineering (UPCON 2021), Tula's Institute, Dhoolkot, Dehradun, Uttarakhand, November 11-13, 2021.

17. V. Patel, **D. Guha**, S. Purwar, Fractional-order Adaptive Sliding Mode Approach for Frequency Regulation in Power System. 9th International Conference on Power System (ICPS) 2021, Indian Institute of Technology Kharagpur, West Bengal, December 16-18, 2021.
18. **D. Guha**, P.K. Roy, and S. Banerjee, Fractional-order Sliding Mode Controller applied for load frequency control of power system, International Conference on Computing, Power, and Communication Technologies (GUCON 2021), Kuala Lumpur. Malaysia, 24-26 September, 2021.

19. **D. Guha**, P.K. Roy, and S. Banerjee, Adaptive symbiotic organism search algorithm optimized 3DOF-PID controller for load frequency control of hybrid power system, CALCON 20, **IEEE Conference**, Kolkata, 28-29 Feb, 2020.

20. S. Singh, and **D. Guha**, Robust Optimal Controller for Frequency Regulation of a Isolated Power System by using Kharitonov's Theorem, 9th IEEE Power India International Conference, PIICON2020, **IEEE Conference**, Deenbandhu Chhotu Ram University of Science and Technology, Murthal, India, from 28th Feb to 1st March, 2020.
21. M. Agarwal, **D. Guha**, and S. Purwar, Quasi-oppositional dragonfly algorithm: applied for frequency stabilization of an isolated hybrid energy distributed power system, 9th IEEE Power India International Conference, PIICON2020, **IEEE Conference**, Deenbandhu Chhotu Ram University of Science and Technology, Murthal, India, from 28th Feb to 1st March, 2020.

22. S. Kumar, G. Yadav, and **D. Guha**, QJAYA tuned fuzzy-PID controller for voltage control of power system, 2019 IEEE International Conference on Electrical, Electronics and Computer Engineering (UPCON), **IEEE Conference**, Aligarh Muslim University, 8-10 November, 2019.

23. V. Patel, **D. Guha**, and S. Purwar, Frequency regulation of an islanded microgrid using internal sliding mode control, International Conference on Power System, **IEEE Conference**, MNIT Jaipur, 20-22 December, 2019.

24. T.M. Vala, V.N. Rajput, K. Joshi, and **D. Guha**, Effect of relay characteristics in optimum coordination of overcurrent relays, 6th Students' Conference on Engineering & Systems (SCES), **IEEE Conference**, MNNIT Allahabad, 10-12 July, 2020.

25. **D. Guha**, P.K. Roy, and S. Banerjee, Disturbance observer based cascade tilt-integral-derivative controller for frequency stabilization of hybrid power system, 2019 IEEE 16th India Council International Conference (INDICON), **IEEE Conference**, Rajkot (Gujarat) from 13-15 December 2019.

26. I. Pandey, R. Verma, A. Shrinate, and **D. Guha**, Robust Disturbance Observer-Based Optimal Controller Design for Hybrid Power System by using Kharitonov's Theorem, 2019 IEEE 16th India Council International Conference (INDICON), **IEEE Conference**, Rajkot (Gujarat) from 13-15 December 2019.

27. **D. Guha**, S.K. Singh, S.K. Sharma, R.K. Ranjan, S. Priya, and A. Ghosh, *Stabilization of a reduced order inverted pendulum by using whale optimization algorithm*, Proc. of 4th Int. Conf. on Computing, Communication, Control And Automation, **IEEE Conference**, Pimpri Chinchwad College of Engineering, Pune, India, 16th - 18th Aug 2018.

28. S. Alam, A. Singh, and **D. Guha**, *Optimal solutions of load frequency control problem using oppositional krill herd algorithm*, Proc. of Control, Measurement and Instrumentation (CMI 2016), **IEEE** Conference, Jadavpur University, Kolkata, West Bengal, India, 8th-10th January, 2016, pp. 6-10.

29. **D. Guha**, P.K. Roy, and S. Banerjee, *Blended biogeography based optimization based LFC controller applied to multi-unit multi-source interconnected power system*, Proc. of Michael Faraday IET International Summit 2015, **IET Conference**, Kolkata, 12-13 September, 2015, pp.143-146.

30. **D. Guha**, P.K. Roy, and S. Banerjee, *Application of krill herd algorithm for optimum design of load frequency controller for multi-area power system network with generation rate constraint*, Proc. of FICTA-2015, **Springer**, 16-18 November 2015, National Institute of Technology, Durgapur, pp 245-257.

31. **D. Guha**, P.K. Roy, and S. Banerjee, *Optimal Design of Superconducting Magnetic Energy Storage Based Multi-Area Hydro-Thermal System Using Biogeography Based Optimization*, Proc. of **IEEE International Conference** on EAIT-2014, 19th-21st December 2014, Indian Statistical Institute (ISI), Kolkata, pp. 52 - 57.

32. **D. Guha**, P.K. Roy, and S. Banerjee, *Ant Lion Optimization: a novel algorithm applied to Load Frequency Control Problem in Power System*, Operations Research and Optimization. Proc. of FOTA 2016. Springer Proceedings in Mathematics & Statistics, Vol 225. Springer, Singapore, 24-26 November 2016, pp. 195-210.

33. **D. Guha**, P.K. Roy, and S. Banerjee, *Symbiotic Organism Search Based Load Frequency Control with TCSC*, Accepted in the Proc. of 4th **IEEE International Conference** on Recent Advances In Information Technology (RAIT 2018), IIT (ISM) Dhanbad, 15-17 March 2018.

National Conference [03]

1. A. Tiwari, and **D. Guha**, Extended Nonlinear Disturbance Observer-aided Robust Controller for Frequency Regulation of a Hybrid Power System, 22nd National Power Systems Conference (NPSC 2022), IIT Delhi, December 17-19, 2022.

2. V. Patel, **D. Guha**, S. Purwar, Frequency regulation of hybrid power system using reduced order disturbance observer based integral sliding mode controller, 21st National Power Systems Conference (NPSC 2020), IIT Gandhinagar, December 17-19, 2020.

3. **D. Guha**, P.K. Roy, and S. Banerjee, *A maiden application of modified grey wolf algorithm optimized cascade tilt-integral-derivative controller in load frequency control*, 20th National Power Systems Conference- NPSC 2018, NIT Trichy, December 14-16, 2018.