Biography

Dr. Tushar Kanti Roy received the Bachelor of Science degree in Electrical & Electronic Engineering from the Rajshahi University of Engineering Technology (RUET), Rajshahi-6204, in 2008, the MEng (Master By Research) degree in Electrical Engineering from the University of New South Wales (UNSW), Australia, in 2012, and the PhD degree in Electrical Engineering from the Deakin University, Australia, in 2019.
Dr. Roy wants to develop an outstanding research career where he will be able to apply his key technical knowledge and skills to achieve innovative research outcomes in the broad areas of power system modeling, stability as well as control, grid integration of renewable energy, microgrids (AC, DC, and hybrid AC/DC), green hydrogen-based electric vehicles, and nonlinear control theory with applications. **Dr. Roy** also wants to enhance his technical skills by sharing knowledge with researchers around the world as well as gathering the same from these researchers.

Tushar Kanti Roy
Honorary Fellow
School of Engineering
Email: tusharkanti.roy@mq.edu.au

Research outputs

Quantifying hourly virtual inertia and battery energy storage system requirements for frequency stability in low-inertia power systems
Saha, S., Elliott, M., Roy, T. K. & Oo, A. M. T., 1 Apr 2026, In: Journal of Energy Storage. 153, Part A, p. 1-17 17 p., 120853.

Reliability constrained optimization of virtual inertia and battery energy storage system sizing for frequency stability in low inertia power systems
Saha, S., Elliott, M., Roy, T. K. & Oo, A. M. T., Mar 2026, In: Sustainable Energy, Grids and Networks. 45, p. 1-15 15 p., 102130.

Techno-economic assessment of Hybrid Renewable Energy Systems with advanced EMS and renewable energy-based EV charging with V2H integration for remote and grid-edge Australian communities
Roy, T. K., 15 Jan 2026, In: Energy Conversion and Management. 348, Part C, p. 1-27 27 p., 120725.

Techno-economic and environmental assessment of green hydrogen production in multiple Australian regions using different electrolyzer technologies
Roy, T. K., 1 Jan 2026, In: Renewable Energy. 256, Part B, p. 1-23 23 p., 123879.

Techno-economic and environmental optimization of green hydrogen and battery-based hybrid renewable energy systems for remote sustainable solutions
Roy, T. K., Saha, S. & Oo, A. M. T., 1 Jan 2026, In: Journal of Energy Storage. 141, Part D, p. 1-27 27 p., 119446.

Adaptive sigmoid-modulated terminal sliding mode control for coordinated SSR damping in DFIG-based wind farms
Roy, T. K., Mahmud, M. A. & Oo, A. M. T., 2026, In: IEEE Transactions on Industry Applications. 62, 3, p. 4344-4362 19 p.

An intelligent robust control framework for stability enhancement in renewable energy powered hybrid AC/DC microgrids with integrated hydrogen energy systems
Islam, M. S., Bushra, I. J., Roy, T. K. & Maung Than Oo, A., 2026, In: IET Energy Systems Integration. 8, 1, p. 1-32 32 p., e70035.

A nonlinear adaptive parameter measurement scheme for resonant grounded distribution networks
Roy, T. K. & Mahmud, M. A., 2026, In: IEEE Control Systems Letters. 10, p. 271-276 6 p.

Electricity supply systems for First Nations communities in remote Australia: evidence, consumer protections and pathways to energy equity

Mahmud, M. A. & Roy, T. K., Oct 2025, In: Energies. 18, 19, p. 1-21 21 p., 5130.

Optimizing hybrid energy systems for remote Australian communities: the role of tilt angle in cost-effective green hydrogen production
Roy, T. K., Saha, S. & Oo, A. M. T., 1 Aug 2025, In: Applied Energy. 391, p. 1-29 29 p., 125921.

Marine predators algorithm-based robust composite controller for enhanced power sharing and real-time voltage stability in DC–AC microgrids
Islam, M. S., Roy, T. K. & Bushra, I. J., Aug 2025, In: Algorithms. 18, 8, p. 1-40 40 p., 531.

Techno-economic and environmental optimization of hydrogen-based hybrid energy systems for remote off-grid australian communities
Roy, T. K., Saha, S. & Oo, A. M. T., Jul 2025, In: Energy Conversion and Management: X. 27, p. 1-21 21 p., 101083.

Techno-economic feasibility of stand-alone hybrid energy systems for a remote Australian community: optimization and sensitivity analysis
Roy, T. K., Mahmud, M. A. & Maung Than Oo, A., Mar 2025, In: Renewable Energy. 241, p. 1-23 23 p., 122286.

A novel composite control approach to enhance stability in wind/PV/PEM fuel cell/hydrogen/BESS-based DC microgrids
Islam, M. S., Roy, T. K., Bushra, I. J., Ghosh, S. K. & Maung Than Oo, A., 29 Jan 2025, In: Journal of Engineering. 2025, 1, p. 1-30 30 p., e70062.

Design and experimental validation of a composite FRL-NFTISMC and BSC for DC-bus voltage stabilization in CPL-based DC microgrids
Palash, D. A., Roy, T. K., Alam, Z. & Maung Than Oo, A., Jan 2025, In: IET Power Electronics. 18, 1, p. 1-20 20 p., e70012.

An optimised adaptive integral sliding mode control approach for multi-area power systems: enhancing LFC robustness and stability with res integration and time-delay mitigation
Roy, T. K., Saha, S. & Oo, A. M. T., 2025, In: IET Energy Systems Integration. 7, 1, p. 1-19 19 p., e70006.

A robust sliding mode control framework with rapid reaching dynamics for PV-battery-based DC microgrids
Mehdi, H. M., Roy, T. K., Deilami, S. & Maung Than Oo, A., 2025, *2025 IEEE International Conference on Energy Technologies for Future Grids (ETFG 2025): conference proceedings.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Enhanced transient stability in hybrid DC/AC microgrids: robust composite control strategy with virtual capacitors integration using ANFIS-optimized control gain parameters
Islam, M. S., Bushra, I. J., Roy, T. K. & Oo, A. M. T., 2025, In: IET Renewable Power Generation. 19, 1, p. 1-33 33 p., e70066.

Inertia sensitivity analysis of power grids with high penetration of renewable energy sources
Saleem, M. I., Saha, S. & Roy, T. K., 2025, In: IEEE Transactions on Industry Applications. 61, 4, p. 5362-5380 19 p.

Stability enhancement of DC microgrids under CPLs using secretary bird optimization algorithm-tuned backstepping-GITSM control: design, simulation, and experimental approach
Islam, M. S., Bushra, I. J., Roy, T. K. & Chowdhury, J. M., 2025, In: IET Power Electronics. 18, 1, p. 1-27 27 p., e70118.

Virtual capacitor-based robust composite controller for stability enhancement in DC microgrids with wind, PV and battery integration
Islam, M. S., Bushra, I. J., Roy, T. K. & Oo, A. M. T., 2025, In: IET Generation, Transmission and Distribution. 19, 1, p. 1-30 30 p., e70125.

Virtual inertia and damping-based cascaded control approach for enhancing load frequency control in low-inertia multi-area power systems

Roy, T. K. & Maung Than Oo, A., 2025, In: Journal of Engineering. 2025, 1, p. 1-22 22 p., e70054.

Virtual inertia planning for enhancing grid stability in low-inertia systems
Saha, S., Saleem, M. I., Roy, T. K. & Oo, A. M. T., 2025, In: IET Energy Systems Integration. 7, 1, p. 1-28 28 p., e70019.

Enhancing grid frequency regulation in low inertia modern multi-area power systems using cascaded non-integer control approaches with BESS-based virtual inertia
Roy, T. K. & Maung Than Oo, A., 18 Dec 2024, In: IET Renewable Power Generation. 18, S1, p. 4602-4620 19 p.

Enhanced composite controller for PV/PMSG/PEMFC and BESS-based DC microgrids voltage regulation: integrating integral terminal sliding mode controller and recursive backstepping controller
Islam, M. S., Bushra, I. J., Roy, T. K., Ghosh, S. K. & Maung Than Oo, A., Nov 2024, In: IET Generation, Transmission and Distribution. 18, 22, p. 3608-3632 25 p.

An advanced integral sliding mode controller design for residual current compensation inverters in compensated power networks to mitigate powerline bushfire hazards
Roy, T. K. & Mahmud, M. A., Jul 2024, In: IET Generation, Transmission and Distribution. 18, 14, p. 2406-2420 15 p.

A frequency stability assessment framework for renewable energy rich power grids
Saleem, M. I., Saha, S. & Roy, T. K., Jun 2024, In: Sustainable Energy, Grids and Networks. 38, p. 1-16 16 p., 101380.

Designing robust hybrid controllers for enhancing output voltage regulation in CPL feed boost converters through backstepping and nonsingular fast terminal sliding mode approaches
Palash, D. A., Alam, Z., Roy, T. K. & Maung Than Oo, A., Jun 2024, In: e-Prime - Advances in Electrical Engineering, Electronics and Energy. 8, p. 1-14 14 p., 100532.

Robust LFC design using adaptive neuro-fuzzy inference-aided optimal fractional-order PIDA control for perturbed power systems with solar and wind power sources
Roy, T. K., Yu, S. S., Mahmud, M. A. & Trinh, H., Jun 2024, In: IET Generation, Transmission and Distribution. 18, 12, p. 2193-2212 20 p.

Assessment and management of frequency stability in low inertia renewable energy rich power grids
Saleem, M. I., Saha, S., Roy, T. K. & Ghosh, S. K., Apr 2024, In: IET Generation, Transmission and Distribution. 18, 7, p. 1372-1390 19 p.

A smart medicine reminder kit with mobile phone calls and some health monitoring features for senior citizens
Paul, L. C., Ahmed, S. S., Rani, T., Haque, M. A., Roy, T. K., Hossain, M. N. & Hossain, M. A., 29 Feb 2024, In: Heliyon. 10, 4, p. 1-12 12 p., e26308.

Designing a high-order sliding mode controller for photovoltaic- and battery energy storage system-based DC microgrids with ANN-MPPT
Roy, T. K., Maung Than Oo, A. & Ghosh, S. K., 2 Jan 2024, In: Energies. 17, 2, p. 1-22 22 p., 532.

A rule-based energy management system for remote area hybrid standalone energy systems with hydrogen energy storage systems to improve the reliability
Roy, T. K., Mahmud, M. A. & Maung Than Oo, A., 2024, *2024 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Designing a double integral sliding mode controller for battery storage and wind - based DC microgrids with ANN-MPPT
Bushra, I. J., Islam, M. S., Roy, T. K., Mollah, M. R. U. & Ghosh, S. K., 2024, *PEEIACON 2024 International Conference on Power, Electrical, Electronics and Industrial Applications.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 450-455 6 p.

Design of global integral terminal sliding mode controller with exponential reaching law for solar PV and BESS - based DC microgrids

Islam, M. S., Bushra, I. J., Roy, T. K. & Ghosh, S. K., 2024, *2024 3rd International Conference on Advancement in Electrical and Electronic Engineering (ICAEEE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Enhancing DC-bus voltage stability in DC distribution networks with constant power loads using modified integral sliding mode controllers
Sasa, A. N., Roy, T. K. & Than Oo, A. M., 2024, *PEEIACON 2024 International Conference on Power, Electrical, Electronics and Industrial Applications.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 311-315 5 p.

Enhancing low-voltage-ride-through in DFIG-connected dfig-based WECSs using an adaptive backstepping control approach
Hasan, M. S. Y., Badrudduza, A. S. M., Ghosh, S. K. & Roy, T. K., 2024, *2024 3rd International Conference on Advancement in Electrical and Electronic Engineering (ICAEEE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Enhancing multi-area load frequency control with decentralized robust terminal sliding mode controllers
Roy, T. K. & Oo, A. M. T., 2024, *2024 IEEE Kansas Power and Energy Conference (KPEC).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 4 p.

Fault compensations in compensated distribution networks to mitigate powerline bushfires using a backstepping nonsingular integral sliding mode controller
Roy, T. K., Mahmud, M. A. & Oo, A. M. T., 2024, *2024 6th International Conference on Smart Power & Internet Energy Systems (SPIES 2024).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 124-129 6 p.

Mitigating subsynchronous resonance in DFIG-based wind farms using a robust terminal sliding mode controller
Roy, T. K., Mahmud, M. A. & Maung Than Oo, A., 2024, *2024 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Multi-area load frequency control using an adaptive reaching law-based integral terminal sliding mode scheme
Roy, T. K., Mahmud, M. A. & Maung Than Oo, A., 2024, *2024 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Transient stability enhancement of a PEM fuel cell based DC-DC boost converter via robust composite backstepping and integral terminal sliding mode control
Islam, M. S., Bushra, I. J., Roy, T. K. & Ghosh, S. K., 2024, *2024 3rd International Conference on Advancement in Electrical and Electronic Engineering (ICAEEE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Robust backstepping global integral terminal sliding mode controller to enhance dynamic stability of hybrid AC/DC microgrids
Roy, T. K., Ghosh, S. K. & Saha, S., Dec 2023, In: Protection and Control of Modern Power Systems. 8, 1, p. 1-13 13 p., 8.

Stability enhancement of battery energy storage and renewable energy-based hybrid AC/DC microgrids using terminal sliding mode backstepping control approaches
Roy, T. K., Ghosh, S. K. & Saha, S., Nov 2023, In: ISA Transactions. 142, p. 40-56 17 p.

A hybrid non-linear voltage controller design for DC–DC buck converters
Alam, Z., Roy, T. K., Ghosh, S. K. & Mahmud, M. A., Oct 2023, In: Journal of Engineering. 2023, 10, p. 1-13 13 p., e12318.

Robust hybrid nonlinear control approach for stability enhancement of a constant power load DC-DC boost converter
Alam, Z., Ghosh, S. K., Fouad Alkhateeb, A., Roy, T. K., Shofiqul Islam, M., Saha, S. & Asif Hussain, M., 1 Jul 2023, In: Alexandria Engineering Journal. 74, p. 535-545 11 p.

Control of DC-DC buck converters using robust composite backstepping and integral terminal sliding mode approaches
Alam, Z., Roy, T. K., Ghosh, S. K. & Mahmud, M. A., Jul 2023, In: IEEE Journal of Emerging and Selected Topics in Industrial Electronics. 4, 3, p. 866-877 12 p.

Control of arc suppression devices for reducing powerline bushfires in resonant grounded power distribution networks using global terminal sliding mode controller
Roy, T. K. & Mahmud, M. A., Jun 2023, In: IET Generation, Transmission and Distribution. 17, 12, p. 2773-2787 15 p.

A hybrid sliding mode control scheme for rapid earth fault current limiters in compensated distribution networks in bushfire prone areas
Roy, T. K., Mahmud, M. A., Nasiruzzaman, A. B. M. & Barik, M., Mar 2023, In: Journal of Engineering. 2023, 3, p. 1-12 12 p., e12232.

Factors affecting voltage stability while integrating inverter based renewable energy sources into weak power grids
Saleem, M. I., Saha, S., Ang, L., Izhar, U. & Roy, T. K., Mar 2023, In: IET Generation, Transmission and Distribution. 17, 6 , p. 1216-1231 16 p.

Impact of high penetration of renewable energy sources on grid frequency behaviour
Saha, S., Saleem, M. I. & Roy, T. K., Feb 2023, In: International Journal of Electrical Power and Energy Systems. 145, p. 1-13 13 p., 108701.

Improving DC-bus voltage stability in CPLs: feeding DC-DC boost converters using a hybrid control approach
Sasa, A. N. & Roy, T. K., 2023, *2023 5th IEEE International Conference on Sustainable Technologies for Industry 5.0 (STI).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

Output voltage stability of a DC-DC buck converter via an improved backstepping method
Alam, M. Z., Roy, T. K., Ghosh, S. K., Mohammad, N. & Paul, L. C., 2023, *2023 International Conference on Electrical, Computer and Communication Engineering (ECCE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

Transient stability enhancement of DC-DC boost converters feeding constant power loads in DC microgrid applications via composite nonlinear control techniques
Ghosh, S. K., Roy, T. K., Alam, Z., Saha, S. & Alzahrani, A., 2023, In: IEEE Access. 11, p. 69951-69964 14 p.

A robust nonlinear backstepping control scheme for hybrid AC/DC microgrids to improve dynamic stability against external disturbances
Roy, T. K. & Mahmud, M. A., Dec 2022, In: Cleaner Energy Systems. 3, p. 1-10 10 p., 100044.

Double integral sliding mode controller based bridge-type flux-coupling non-superconducting fault current limiter to protect DFIG-based multi-machine power system under transient-state
Islam, M. R., Hossain, M. A., Hasan, J., Roy, T. K. & Sadi, M. A. H., Nov 2022, In: International Journal of Electrical Power and Energy Systems. 142, Part A, p. 1-17 17 p., 108271.

Protecting DFIG-based multi-machine power system under transient-state by nonlinear adaptive backstepping controller-based capacitive BFCL
Hossain, M. A., Islam, M. R., Haque, M.Y.-Y. U., Hasan, J., Roy, T. K. & Sadi, M. A. H., Nov 2022, In: IET Generation, Transmission and Distribution. 16, 22, p. 4528-4548 21 p.

An integral backstepping controller design for compensated distribution networks with rapid earth fault current limiters in bushfire prone areas
Roy, T. K., Mahmud, M. A. & Roy, N. K., Oct 2022, In: IET Generation, Transmission and Distribution. 16, 19, p. 3928-3940 13 p.

A nonlinear adaptive excitation controller design for two-axis models of synchronous generators in multimachine power systems to augment the transient stability during severe faults
Roy, T. K. & Mahmud, M. A., Oct 2022, In: IET Generation, Transmission and Distribution. 16, 19, p. 3906-3927 22 p.

Design of an integral terminal-based sliding mode controller for PV and BESS-based DC microgrids
Roy, T. K., Pramanik, M. A. H. & Ghosh, S. K., Sept 2022, In: Energy Nexus. 7, p. 1-11 11 p., 100130.

Design of robust integral terminal sliding mode controllers with exponential reaching laws for solar PV and BESS-based DC microgrids with uncertainties
Yeasmin, S., Roy, T. K. & Ghosh, S. K., 1 Jul 2022, In: Sustainability. 14, 13, p. 1-17 17 p., 7802.

A nonlinear double-integral sliding mode controller design for hybrid energy storage systems and solar photovoltaic units to enhance the power management in DC microgrids
Ghosh, S. K., Roy, T. K., Pramanik, M. A. H. & Mahmud, M. A., Jun 2022, In: IET Generation, Transmission and Distribution. 16, 11, p. 2228-2241 14 p.

A nonlinear backstepping control scheme for rapid earth fault current limiters in resonant grounded power distribution systems: applications for mitigating powerline bushfires
Roy, T. K., Mahmud, M. A., Barik, M. A., Nasiruzzaman, A. B. M. & Maung Than Oo, A., Apr 2022, In: IEEE Journal of Emerging and Selected Topics in Industrial Electronics. 3, 2, p. 362-371 10 p.

Fault current compensations in resonant grounded distribution systems to mitigate powerline bushfires using a nonsingular terminal sliding model controller
Roy, T. K. & Mahmud, M. A., Feb 2022, In: IET Generation, Transmission and Distribution. 16, 3, p. 479-491 13 p.

An omni-directional wideband patch antenna with parasitic elements for Sub-6 GHz band applications
Paul, L. C., Saha, H. K., Rani, T., Mahmud, M. Z., Roy, T. K. & Lee, W.-S., 2022, In: International Journal of Antennas and Propagation. 2022, p. 1-11 11 p., 9645280.

A wideband inset-fed simple patch antenna for sub-6 GHz band applications
Paul, L. C., Saha, H. K., Roy, T. K., Azim, R. & Islam, M. T., 2022, *2022 International Conference on Innovations in Science, Engineering and Technology (ICISET).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 106-110 5 p.

Design of a nonlinear integral terminal sliding mode controller for a PEM fuel cell based on a DC-DC boost converter
Akter, F., Roy, T. K., Islam, M. S., Alkhateeb, A. F. & Mollah, M. A., 2022, In: IEEE Access. 10, p. 97419-97428 10 p.

Development of a broadband antenna for 5G sub-6 GHz cellular and IIoT smart automation applications
Rani, T., Das, S. C., Hossen, M. S., Paul, L. C. & Roy, T. K., 2022, *12th International Conference on Electrical and Computer Engineering ICECE 2022.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 465-468 4 p.

Virtual inertia support in power systems for high penetration of renewables - overview of categorization, comparison, and evaluation of control techniques
Roy, N. K., Islam, S., Podder, A. K., Roy, T. K. & Muyeen, S. M., 2022, In: IEEE Access. 10, p. 129190-129216 27 p.

Design of nonlinear backstepping double-integral sliding mode controllers to stabilize the DC-bus voltage for DC-DC converters feeding CPLs
Ghosh, S. K., Roy, T. K., Pramanik, M. A. H. & Mahmud, M. A., 2 Oct 2021, In: Energies. 14, 20, p. 1-16 16 p., 6753.

A non-linear adaptive excitation control scheme for feedback linearized synchronous generations in multimachine power systems
Roy, T. K., Mahmud, M. A., Shen, W. & Maung Than Oo, A., May 2021, In: IET Generation, Transmission and Distribution. 15, 9, p. 1501-1520 20 p.

A non-singular fast terminal sliding mode control scheme for residual current compensation inverters in compensated distribution networks to mitigate powerline bushfires
Roy, T. K., Mahmud, M. A., Nasiruzzaman, A. B. M., Barik, M. A. & Maung Than Oo, A., May 2021, In: IET Generation, Transmission and Distribution. 15, 9, p. 1421-1434 14 p.

A backstepping integral sliding mode controller design for partial feedback linearized models of synchronous generators in simple power systems to improve the transient stability
Pramanik, M. A. H., Roy, T. K., Anower, M. S., Ghosh, S. K. & Mahmud, M. A., 2021, *Proceedings of 2021 IEEE 2nd International Conference on Smart Technologies for Power, Energy and Control (STPEC).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

A backstepping sliding mode controller design for synchronous machine excitation systems for enhancing the transient stability
Joyeeta, T. S., Roy, T. K. & Sheikh, M. R. I., 2021, *3rd International Conference on Electrical and Electronic Engineering ICEEE 2021.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 161-164 4 p.

A composite nonlinear controller design to enhance the large-signal stability of a DC distribution system with constant power loads
Ghosh, S. K., Roy, T. K., Pramanik, M. A. H. & Mahmud, M. A., 2021, *Proceedings of 2021 IEEE 2nd International Conference on Smart Technologies for Power, Energy and Control (STPEC).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

A fast power reaching law-based robust integral sliding mode controller design for maintaining power-sharing in DC microgrids
Rani, T. & Roy, T. K., 2021, *Proceedings of 2021 6th International Conference on Development in Renewable Energy Technology (ICDRET).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

A hybrid reaching law based double-integral sliding mode controller design to mitigate SSR effects in a DFIG-based wind farm
Jewel, A. S. & Roy, T. K., 2021, *2021 5th International Conference on Electrical Engineering and Information Communication Technology (ICEEICT).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

An adaptive sliding mode excitation controller design for synchronous generators
Roy, T. K., Faria, F., Ghosh, S. K. & Pramanik, M. A. H., 2021, *Proceedings of 2021 31st Australasian Universities Power Engineering Conference (AUPEC).* Rajakaruna, S., Siada, A. A., Iu, H. C., Ghosh, A. & Fernando, T. (eds.). Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

A robust double integral sliding mode controller design based on an adaptive power reaching law for mitigating SSR problems
Faria, F., Roy, T. K., Haque, T., Sarkar, T., Khatun, M. M. & Hore, A. K., 2021, *2021 3rd International Conference on Sustainable Technologies for Industry 4.0 (STI).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 4 p.

A robust linear optimal state feedback controller design for excitation systems of synchronous generators in single machine power systems with parametric uncertainties
Ghosh, S. K., Roy, T. K., Pramanik, M. A. H. & Mahmud, M. A., 2021, *2021 IEEE Industry Applications Society Annual Meeting (IAS).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

A triple T-topped planar antenna for 5G/WiMAX applications
Paul, L. C., Ali, M. H., Azim, R. & Roy, T. K., 2021, *2021 3rd International Conference on Sustainable Technologies for Industry 4.0 (STI).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

A variable power reaching law-based integral sliding mode controller design to maintain power sharing in DC microgrids
Rani, T. & Roy, T. K., 2021, *2021 5th International Conference on Electrical Information and Communication Technology (EICT).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

DC-bus voltage regulation in DC microgrids using a power reaching law-integral sliding mode control approach
Haque, T., Roy, T. K., Faria, F., Khatun, M. M., Sarkar, T. & Hore, A. K., 2021, *2021 International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering (IC4ME2).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 4 p.

Design of a double integral sliding mode controller for DC-DC boost converters in applications for fuel cells
Peyal, H. I., Pramanik, M. A. H., Ghosh, S. K. & Roy, T. K., 2021, *2021 International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering (IC4ME2).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 3 p.

Design of a fast power reaching law-based integral robust backstepping sliding mode controller for grid-tied PV systems
Roy, T. K., Akter, F., Ghosh, S. K. & Pramanik, M. A. H., 2021, *Proceedings of 2021 6th International Conference on Development in Renewable Energy Technology (ICDRET).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 4 p.

Design of an adaptive sliding mode controller for rapid earth fault current limiters in resonant grounded distribution networks to mitigate powerline bushfires
Roy, T. K., Mahmud, M. A., Ghosh, S. K., Pramanik, M. A. H., Kumar, R. & Oo, A. M. T., 2021, *2021 IEEE Texas Power and Energy Conference (TPEC).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Design of an integral sliding mode controller-based on a hybrid reaching law for DC microgrids
Rani, T. & Roy, T. K., 2021, *2021 5th International Conference on Electrical Engineering and Information Communication Technology (ICEEICT).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

Design of a nonlinear excitation controller for single machine infinite bus power systems to improve the transient stability
Joyeeta, T. S., Roy, T. K. & Sheikh, M. R. I., 2021, *2021 International Conference on Automation, Control and Mechatronics for Industry 4.0 (ACMI).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

Design of a robust integral sliding mode controller based on an enhanced reaching law for DC microgrids
Haque, T., Roy, T. K., Faria, F., Sarkar, T., Khatun, M. M. & Hore, A. K., 2021, *2021 3rd International Conference on Sustainable Technologies for Industry 4.0 (STI).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 4 p.

Design of a robust integral sliding mode controller considering continuous function-based fast power reaching law for DC microgrids
Rani, T. & Roy, T. K., 2021, *2021 24th International Conference on Computer and Information Technology (ICCIT).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

Design of a robust integral sliding mode controller using the continuous function-based fast power reaching law for DC-DC boost converters in fuel cells applications
Akter, F. & Roy, T. K., 2021, *Proceedings of 2021 IEEE International Conference on Power, Electrical, Electronic and Industrial Applications (PEEIACON).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 45-48 4 p.

Design of constant rate reaching law-sliding mode controllers for SMIB power systems
Sarkar, T., Faria, F., Roy, T. K., Haque, T., Hore, A. K. & Khatun, M. M., 2021, *Proceedings of 2021 IEEE International Women in Engineering (WIE) Conference on Electrical and Computer Engineering (WIECON-ECE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 129-132 4 p.

Design of double-integral sliding mode controllers to mitigate SSR problems in DFIG-based wind farms using fast power reaching laws
Jewel, A. S. & Roy, T. K., 2021, *Proceedings of 2021 6th International Conference on Development in Renewable Energy Technology (ICDRET).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

Energy management techniques to enhance DC-bus voltage transient stability and power balancing issues for islanded DC microgrids
Ghosh, S. K., Roy, T. K., Pramanik, M. A. H. & Ali, M. S., 2021, *Advances in clean energy technologies.* Azad, A. K. (ed.). London, UK ; San Diego, US ; Cambridge, US ; Oxford, UK: Elsevier, p. 349-375 27 p.

Enhancement of transient stability of SMIB power systems using a robust integral backstepping-partial feedback linearize approach
Khatun, M. M., Roy, T. K., Faria, F., Haque, T., Sarkar, T. & Hore, A. K., 2021, *2021 International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering (IC4ME2).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 4 p.

Hybrid robust adaptive backstepping sliding mode controller design for mitigating SSR in series-compensated DFIG-based wind generation systems
Roy, T. K. & Mahmud, M. A., 2021, *2021 IEEE Industry Applications Society Annual Meeting (IAS).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

LMI-based optimal linear quadratic controller design for multiple solar PV units connected to distribution networks
Ghosh, S. K., Roy, T. K., Pramanik, M. A. H. & Mahmud, M. A., 2021, *2021 IEEE Texas Power and Energy Conference (TPEC).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 455-460 6 p.

Nonlinear backstepping controller design for bridge-type fault current limiter to enhance the transient performance of hybrid power systems
Islam, M. R., Upadhay, A. D., Roy, T. K., Hasan, J. & Mahmud, M. A., 2021, In: International Transactions on Electrical Energy Systems. 31, 11, p. 1-17 17 p., e13097.

Partial feedback linearizing backstepping excitation controller for a synchronous generator in a simple power system to improve the transient stability
Pramanik, M. A. H., Roy, T. K., Anower, M. S., Ghosh, S. K. & Mahmud, M. A., 2021, *2021 IEEE Industry Applications Society Annual Meeting (IAS).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Power flow control in dc microgrids using an integral sliding mode control approach
Haque, T., Roy, T. K., Faria, F., Khatun, M. M., Sarkar, T. & Hore, A. K., 2021, *2021 International Conference on Automation, Control and Mechatronics for Industry 4.0 (ACMI).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

Power reaching law based double-integral sliding mode controller for mitigating SSR problems in DFIG based wind farms
Jewel, A. S., Roy, T. K. & Rani, T., 2021, *Proceedings of 2021 IEEE International Women in Engineering (WIE) Conference on Electrical and Computer Engineering (WIECON-ECE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 133-136 4 p.

Power reaching law-double integral sliding mode controller design to mitigate SSR problems in a DFIG-based wind farm
Faria, F., Roy, T. K., Sarkar, T., Haque, T., Khatun, M. M. & Hore, A. K., 2021, *2021 International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering (IC4ME2).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 4 p.

Robust adaptive backstepping sliding mode controller for a DC-DC buck converter fed DC motor
Roy, T. K., Faria, F., Ghosh, S. K. & Pramanik, M. A. H., 2021, *2021 Joint 10th International Conference on Informatics, Electronics and Vision (ICIEV) and 2021 5th International Conference on Imaging, Vision and Pattern Recognition (icIVPR).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Robust adaptive sliding mode excitation controller design with external disturbances for synchronous generators
Roy, T. K., Faria, F., Pramanik, M. A. H. & Ghosh, S. K., 2021, *2021 Joint 10th International Conference on Informatics, Electronics and Vision (ICIEV) and 2021 5th International Conference on Imaging, Vision and Pattern Recognition (icIVPR).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 7 p.

Robust backstepping integral terminal sliding mode controller for a grid-tied solar PV unit
Roy, C., Roy, T. K. & Paul, L. C., 2021, *Proceedings of 2021 IEEE International Conference on Power, Electrical, Electronic and Industrial Applications (PEEIACON).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 37-40 4 p.

Robust nonlinear double integral sliding mode controller design for mitigating SSR in DFIG-based wind farms
Faria, F., Roy, T. K., Khatun, M. M., Sarkar, T., Haque, T. & Hore, A. K., 2021, *2021 International Conference on Automation, Control and Mechatronics for Industry 4.0 (ACMI).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

Robust partial feedback linearizing excitation controller design for higher-order synchronous generator in SMIB systems to improve the transient stability
Pramanik, M. A. H., Roy, T. K., Ghosh, S. K., Anower, M. S. & Mahmud, M. A., 2021, *2021 IEEE Texas Power and Energy Conference (TPEC).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 467-472 6 p.

Speed control of a DC-DC buck converter fed DC motor using an adaptive backstepping sliding mode control approach
Roy, T. K., Pramanik, M. A. H., Faria, F. & Ghosh, S. K., 2021, *Proceedings of 2021 31st Australasian Universities Power Engineering Conference (AUPEC).* Rajakaruna, S., Siada, A. A., Iu, H. C., Ghosh, A. & Fernando, T. (eds.). Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Stability analysis of an SMIB power system using an integral backstepping-partial feedback linearizing approach
Hore, A. K., Roy, T. K., Sarkar, T., Faria, F., Haque, T. & Khatun, M. M., 2021, *2021 International Conference on Automation, Control and Mechatronics for Industry 4.0 (ACMI).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 4 p.

Transient stability enhancement in SMIB power systems using a power reaching law-sliding mode controller
Sarkar, T., Roy, T. K., Hore, A. K., Faria, F., Haque, T. & Khatun, M. M., 2021, *2021 International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering (IC4ME2).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 4 p.

Variable power reaching law-sliding mode controllers for partial linearized SMIB power systems
Khatun, M. M., Roy, T. K., Faria, F., Haaue, T., Sarkar, T. & Hore, A. K., 2021, *Proceedings of 2021 IEEE International Conference on Power, Electrical, Electronic and Industrial Applications (PEEIACON).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 49-52 4 p.

Mitigation of SSR in series-compensated DFIG-based wind farms with STATCOMs using a nonlinear backstepping control scheme
Roy, T. K., Ghosh, S. K., Anower, M. S., Mahmud, M. A., Kumar, R. & Saxena, A., 16 Dec 2020, *9th IEEE International Conference on Power Electronics, Drives and Energy Systems PEDES 2020.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

An adaptive partial feedback linearizing control scheme: an application to a single machine infinite bus system
Roy, T. K., Mahmud, M. A., Shen, W. X. & Oo, A. M. T., Nov 2020, In: IEEE Transactions on Circuits and Systems II: Express Briefs. 67, 11, p. 2557-2561 5 p.

An energy management system-based control strategy for DC microgrids with dual energy storage systems
Ghosh, S. K., Roy, T. K., Pramanik, M. A. H., Sarkar, A. K. & Mahmud, M. A., 1 Jun 2020, In: Energies. 13, 11, p. 1-16 16 p., 2992.

Fault ride through capability improvement of DFIG fig based wind farm using nonlinear controller based bridge-type flux coupling non-superconducting fault current limiter
Islam, M. R., Huda, M. N., Hasan, J., Sadi, M. A. H., AbuHussein, A., Roy, T. K. & Mahmud, M. A., 1 Apr 2020, In: Energies. 13, 7, p. 1-25 25 p., 1696.

An advanced excitation control scheme for a synchronous generator in a single machine infinite bus system based on detailed dynamical models

Pramanik, M. A. H., Roy, T. K., Ghosh, S. K., Anower, M. S. & Mahmud, M. A., 2020, *9th IEEE International Conference on Power Electronics, Drives and Energy Systems PEDES 2020*. Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

A new multilevel inverter with alleviated number of switches for renewable energy applications
Mondol, M. H., Biswas, S. P. & Roy, T. K., 2020, *2020 IEEE Region 10 Symposium (TENSYMP).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 961-964 4 p.

Integral adaptive controller design for single-phase-grid-connected solar PV systems with output LCL filters
Roy, T. K., Ghosh, S. K., Pramanik, M. A. H. & Anower, M. S., 2020, *Proceedings of 2020 11th International Conference on Electrical and Computer Engineering (ICECE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE) , p. 113-116 4 p.

Neuro fuzzy logic controlled parallel resonance type fault current limiter to improve the fault ride through capability of DFIG based wind farm
Islam, M. R., Hasan, J., Shipon, M. R. R., Sadi, M. A. H., Abuhussein, A. & Roy, T. K., 2020, In: IEEE Access. 8, p. 115314-115334 21 p.

Nonlinear adaptive partial feedback linearizing controller design for permanent magnet synchronous generator-based wind farms
Mahmud, M. A., Roy, T. K., Rajasekar, N., Muttaqi, K. M. & Oo, A. M. T., 2020, *2020 IEEE International Conference on Power Electronics, Smart Grid and Renewable Energy (PESGRE2020).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 1-6 6 p.

Nonlinear backstepping controller design for grid-connected photovoltaic systems with output LC filters to improve dynamic stability and power quality
Roy, T. K., Mahmud, M. A., Islam, S. N., Rajasekar, N., Muttaqi, K. M. & Oo, A. M. T., 2020, *2020 IEEE International Conference on Power Electronics, Smart Grid and Renewable Energy (PESGRE2020).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 1-5 5 p.

Robust adaptive direct power control of grid-connected photovoltaic systems
Roy, T. K., Mahmud, M. A., Islam, S. N., Rajasekar, N., Muttaqi, K. M. & Oo, A. M. T., 2020, *2020 IEEE International Conference on Power Electronics, Smart Grid and Renewable Energy (PESGRE2020).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 1-6 6 p.

Analysis of steady-state characteristics for a newly designed high voltage gain switched inductor Z-source inverter
Subhani, N., Kannan, R., Mahmud, M. A., Roy, T. K. & Romlie, M. F., Sept 2019, In: Electronics. 8, 9, p. 1-26 26 p., 940.

Robust adaptive backstepping excitation controller design for higher-order models of synchronous generators in multimachine power systems
Roy, T. K., Mahmud, M. A. & Oo, A. M. T., Jan 2019, In: IEEE Transactions on Power Systems. 34, 1, p. 40-51 12 p.

A novel modulation scheme to improve the injected power quality for modular multilevel medium voltage grid-tied power converters
Mandol, M. H., Biswas, S. P., Roy, T. K., Hosain, M. K. & Kibria, M. F., 2019, *2019 International Conference on Electrical, Computer and Communication Engineering (ECCE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Nonlinear adaptive backstepping controller design for permanent magnet synchronous generator (PMSG)-based wind farms to enhance fault ride through capabilities
Roy, T. K., Mahmud, M. A., Islam, S. N. & Oo, A. M. T., 2019, *2019 IEEE Power and Energy Society General Meeting (PESGM).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

Nonlinear adaptive direct power controllers of DFIG-based wind farms for enhancing FRT capabilities
Roy, T. K., Mahmud, M. A., Islam, S. N., Muttaqi, K. M. & Oo, A. M. T., 2019, *2019 IEEE Industry Applications Society Annual Meeting*. Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 1-6 6 p.

Robust nonlinear adaptive feedback linearizing decentralized controller design for islanded DC microgrids
Mahmud, M. A., Roy, T. K., Saha, S., Enamul Haque, M. & Pota, H. R., 2019, In: IEEE Transactions on Industry Applications. 55, 5, p. 5343-5352 10 p.

Dynamic stability analysis of hybrid islanded DC microgrids using a nonlinear backstepping approach
Roy, T. K. & Mahmud, M. A., Dec 2018, In: IEEE Systems Journal. 12, 4, p. 3120-3130 11 p.

Sensor fault and cyber attack resilient operation of DC microgrids
Saha, S., Roy, T. K., Mahmud, M. A., Haque, M. E. & Islam, S. N., Jul 2018, In: International Journal of Electrical Power and Energy Systems. 99, p. 540-554 15 p.

Control and power sharing in hybrid AC/DC microgrids using a nonlinear backstepping approach
Roy, T. K., Mahmud, M. A., Islam, S. N., Muttaqi, K. M., Haque, M. E. & Oo, A. M. T., 2018, *2018 IEEE Industry Applications Society Annual Meeting (IAS).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 1-8 8 p. 2018-IACC-0785

Design and performance exploration of a DGS metamaterial MPA by etching four dual isosceles triangular defects on the ground plane
Paul, L. C., Haque, M. A., Sarker, S., Ur Rashid, M. M., Haque, M. A. & Roy, T. K., 2018, *2018 4th International Conference on Computer, Communication, Chemical, Material and Electronic Engineering (IC4ME2).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 4 p.

Direct power controller design for improving FRT capabilities of DFIG-Based wind farms using a nonlinear backstepping approach
Roy, T. K., Mahmud, M. A., Islam, S. N. & Oo, A. M. T., 2018, *2018 8th International Conference on Power and Energy Systems (ICPES 2018).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 240-245 6 p.

Enhancement of fault ride through capabilities for grid-connected DFIG-based wind farms using nonlinear adaptive backstepping controllers
Roy, T. K., Mahmud, M. A., Islam, S. N., Oo, A. M. T. & Muttaqi, K. M., 2018, *Proceedings of 2018 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Feedback linearizing model predictive excitation controller design for multimachine power systems
Orchi, T. F., Roy, T. K., Mahmud, M. A. & Oo, A. M. T., 2018, In: IEEE Access. 6, p. 2310-2319 10 p.

Nonlinear backstepping controller design for improving fault ride through capabilities of DFIG-based wind farms
Roy, T. K., Mahmud, M. A. & Oo, A. M. T., 2018, *2018 IEEE Power and Energy Society General Meeting (PESGM).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

Nonlinear partial feedback linearizing controller design for pmsg-based wind farms to enhance LVRT capabilities
Mahmud, M. A., Roy, T. K., Littras, K., Islam, S. N. & Oo, A. M. T., 2018, *Proceedings of 2018 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Power quality improvements in single-phase grid-connected photovoltaic systems using a nonlinear adaptive controller
Roy, T. K., Mahmud, M. A., Islam, S. N. & Oo, A. M. T., 2018, *2018 Australasian Universities Power Engineering Conference (AUPEC).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Nonlinear adaptive excitation controller design for multimachine power systems with unknown stability sensitive parameters
Roy, T. K., Mahmud, M. A., Shen, W. & Oo, A. M. T., Nov 2017, In: IEEE Transactions on Control Systems Technology. 25, 6, p. 2060-2072 13 p.

Active power control of three-phase grid-connected solar PV systems using a robust nonlinear adaptive backstepping approach
Roy, T. K. & Mahmud, M. A., 1 Sept 2017, In: Solar Energy. 153, p. 64-76 13 p.

Nonlinear adaptive backstepping excitation controller design for higher-order models of synchronous generators
Roy, T. K., Mahmud, M. A., Oo, A. M. T. & Pota, H. R., Jul 2017, In: IFAC-PapersOnLine. 50, 1, p. 4368-4373 6 p.

Robust nonlinear adaptive backstepping excitation controller design for rejecting external disturbances in multimachine power systems
Roy, T. K., Mahmud, M. A., Shen, W., Oo, A. M. T. & Haque, M. E., Jan 2017, In: International Journal of Electrical Power and Energy Systems. 84, p. 76-86 11 p.

Adaptive controller design for speed control of DC motors driven by a DC-DC buck converter
Roy, T. K., Paul, L. C., Sarkar, M. I., Pervej, M. F. & Tumpa, F. K., 2017, *2017 International Conference on Electrical, Computer and Communication Engineering (ECCE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 100-105 6 p.

An adaptive direct power controller for three-phase grid-connected photovoltaic systems with parametric uncertainties
Roy, T. K., Mahmud, M. A., Oo, A. M. T. & Haque, M. E., 2017, *2017 11th Asian Control Conference (ASCC).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 2686-2691 6 p.

Control of islanded DC microgrids using nonlinear adaptive decentralized controllers
Mahmud, M. A., Roy, T. K., Saha, S., Haque, M. E. & Pota, H. R., 2017, *2017 IEEE Industry Applications Society Annual Meeting.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 1-6 6 p.

Design and simulation of different shaped (S, E, C and combined S-E-C) multiband MPA array using advanced design system
Paul, L. C., Nahar, S. & Roy, T. K., 2017, *Proceedings of the 2017 4th International Conference on Advances in Electrical Engineering.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 84-89 6 p.

Feedback linearizing model predictive excitation controller design for two-axis models of synchronous generators in single machine power systems
Orchi, T. F., Roy, T. K., Mahmud, M. A. & Oo, A. M. T., 2017, *2017 Australasian Universities Power Engineering Conference (AUPEC).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Nonlinear adaptive backstepping controller design for grid currents regulation of a CSI based PV system with external disturbances
Roy, T. K., Paul, L. C., Sarkar, M. I., Pervej, M. F. & Tumpa, F. K., 2017, *2017 International Conference on Electrical, Computer and Communication Engineering (ECCE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 641-646 6 p.

Nonlinear adaptive backstepping controller design for three-phase grid-connected solar photovoltaic systems
Roy, T. K., Mahmud, M. A., Oo, A. M. T., Bansal, R. & Haque, M. E., 2017, In: Electric Power Components and Systems. 45, 20, p. 2275-2292 18 p.

Nonlinear adaptive backstepping controller design for trajectory flight control of UAHs
Roy, T. K., Paul, L. C., Pervej, M. F., Sarkar, M. I. & Tumpa, F. K., 2017, *2017 International Conference on Electrical, Computer and Communication Engineering (ECCE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 69-74 6 p.

Nonlinear backstepping controller design for V2G applications with output LCL filters
Roy, T. K., Mahmud, M. A. & Oo, A. M. T., 2017, *2017 Australasian Universities Power Engineering Conference (AUPEC).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Nonlinear decentralized feedback linearizing controller design for islanded DC microgrids
Mahmud, M. A., Roy, T. K., Islam, S. N., Saha, S. & Haque, M. E., 2017, In: Electric Power Components and Systems. 45 , 16, p. 1747-1761 15 p.

Nonlinear robust controller design for a grid-connected PV system using DPC approach
Roy, T. K., Pervej, M. F., Sarkar, M. I. & Tumpa, F. K., 2017, *2017 International Conference on Electrical, Computer and Communication Engineering (ECCE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 11-16 6 p.

Prioritizing customers for neighborhood energy sharing in residential microgrids with a transactive energy market
Opadokun, F., Roy, T. K., Akter, M. N. & Mahmud, M. A., 2017, *2017 IEEE Power and Energy Society General Meeting.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

Robust adaptive backstepping controller design for PWM based DC-DC buck converter based on projection method
Roy, T. K., Paul, L. C., Pervej, M. F., Sarkar, M. I. & Tumpa, F. K., 2017, *2017 International Conference on Electrical, Computer and Communication Engineering (ECCE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 63-68 6 p.

Robust adaptive excitation control of synchronous generators in multimachine power systems under parametric uncertainties and external disturbances
Roy, T. K., Mahmud, M. A., Oo, A. M. T. & Haque, M. E., 2017, *2017 IEEE 56th Annual Conference on Decision and Control (CDC).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 2655-2660 6 p.

Robust direct power control of grid-connected photovoltaic systems based on adaptive partial feedback linearization
Roy, T. K., Mahmud, M. A., Shen, W. X. & Haque, M. E., 2017, *Proceedings of the 2017 12th IEEE Conference on Industrial Electronics and Applications (ICIEA).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 64-69 6 p.

Non-linear adaptive coordinated controller design for multimachine power systems to improve transient stability
Roy, T. K., Mahmud, M. A., Shen, W. & Oo, A. M. T., Oct 2016, In: IET Generation, Transmission and Distribution. 10, 13, p. 3353-3363 11 p.

Adaptive controller design for grid current regulation of a CSI based PV system
Roy, T. K., Pervej, M. F. & Tumpa, F. K., 2016, *Proceedings of 2nd International Conference on Electrical, Computer & Telecommunication Engineering , ICECTE 2016.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 4 p.

Nonlinear adaptive backstepping controller design for controlling bidirectional power flow of BESSs in DC microgrids
Roy, T. K., Mahmud, M. A., Oo, A. M. T., Haque, M. E., Muttaqi, K. M. & Mendis, N., 2016, *2016 IEEE Industry Applications Society Annual Meeting.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 1-8 8 p.

Nonlinear adaptive controller design for PWM based DC-DC boost converters using bankstepping control scheme
Roy, T. K., Pervej, M. F., Rahman, S. & Tumpa, F. K., 2016, *2016 5th International Conference on Informatics, Electronics and Vision (ICIEV).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 608-613 6 p.

Nonlinear adaptive controller design for velocity control of a DC motor driven by a DC-DC buck converter using backstepping approach
Roy, T. K., Pervej, M. F., Tumpa, F. K. & Paul, L. C., 2016, *Proceedings of 2nd International Conference on Electrical, Computer and Telecommunication Engineering , ICECTE 2016.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 4 p.

Nonlinear backstepping controller design for a three-phase grid-connected photovoltaic system using DPC approach
Pervej, M. F., Roy, T. K., Tumpa, F. K. & Sarkar, M. I., 2016, *Proceedings of 9th International Conference on Electrical and Computer Engineering, ICECE 2016.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 407-410 4 p.

Robust nonlinear adaptive backstepping controller design for three-phase grid-connected solar photovoltaic systems with unknown parameters
Roy, T. K., Mahmud, M. A., Oo, A. M. T. & Haque, M. E., 2016, *2016 IEEE Power and Energy Society General Meeting (PESGM).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

Robust nonlinear adaptive backstepping controller design for unmanned autonomous vehicles
Roy, T. K., Pervej, M. F., Tumpa, F. K., Paul, L. C. & Sarkar, M. I., 2016, *2016 International Workshop on Computational Intelligence (IWCI).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 1-6 6 p.

Security enhancement in the receive diversity with co-operative relay for wireless networks
Sarkar, M. I., Roy, T. K., Sarkar, M. Y. & Mou, J. R., 2016, *Proceeding of the 19th International Conference on Computer and Information Technology.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 288-292 5 p.

Microstructure core photonic crystal fiber for gas sensing applications
Morshed, M., Hassan, I., Roy, T. K., Uddin, M. S. & Abdur Razzak, S. M., 10 Oct 2015, In: Applied Optics. 54, 29, p. 8637-8643 7 p.

A nonlinear adaptive backstepping approach for coordinated excitation and steam-valving control of synchronous generators
Roy, T. K., Mahmud, M. A., Shen, W. X. & Oo, A. M. T., 2015, *2015 10th Asian Control Conference (ASCC).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Nonlinear adaptive excitation controller design for multimachine power systems
Roy, T. K., Mahmud, M. A., Shen, W. & Oo, A. M. T., 2015, *2015 IEEE Power and Energy Society General Meeting.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 5 p.

Nonlinear backstepping controller design for sharing active and reactive power in three-phase grid-connected photovoltaic systems
Roy, T. K., Mahmud, M. A., Hossain, M. J. & Oo, A. M. T., 2015, *Challenges for Future Grids: 2015 Australasian Universities Power Engineering Conference (AUPEC).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), 6 p.

Nonlinear excitation control of synchronous generators based on adaptive backstepping method
Roy, T. K., Mahmud, M. A., Shen, W. & Oo, A. M. T., 2015, *Proceedings of the 2015 10th IEEE Conference on Industrial Electronics and Applications.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 11-16 6 p.

Nonlinear robust backstepping controller for attitude control of a rotary wing unmanned aerial vehicle
Roy, T. K., Morshed, M., Tumpa, F. K. & Pervej, M. F., 2015, *2015 IEEE International WIE Conference on Electrical and Computer Engineering (WIECON-ECE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 227-230 4 p.

Performance comparison of three optimized alternative pulse shaping filters with the raised cosine filter for wireless applications
Roy, T. K., Pervej, M. F. & Morshed, M., 2015, *Proceedings of 1st International Conference on Computer and Information Engineering, ICCIE 2015.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 9-12 4 p.

Robust adaptive backstepping excitation controller design for simple power system models with external disturbances
Roy, T. K., Mahmud, M. A., Shen, W. X. & Oo, A. M. T., 2015, *2015 IEEE Conference on Control and Applications (CCA 2015).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 715-720 6 p.

Robust adaptive backstepping speed controller design for a series DC motor
Roy, T. K., Morshed, M., Tumpa, F. K. & Pervej, M. F., 2015, *2015 IEEE International WIE Conference on Electrical and Computer Engineering (WIECON-ECE).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 243-246 4 p.

Analysis of PAPR reduction of DFT-SCFDMA system using different sub-carrier mapping schemes
Pervej, M. F., Sarkar, M. Z. I., Roy, T. K., Hasan, M. M., Rahman, M. M. & Bain, S. K., 2014, *2014 17th International Conference on Computer and Information Technology (ICCIT).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 435-439 5 p.

Active noise control using filtered-xLMS and feedback ANC filter algorithms
Roy, T. K. & Morshed, M., 2013, *Proceedings of the 2nd International Conference on Advances in Electrical Engineering, 2013 (ICAEE 2013).* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 7-12 6 p.

Altitude control of an unmanned autonomous helicopter via robust backstepping controller under horizontal wind gusts
Roy, T. K. & Garrattt, M., 2012, *2012 7th International Conference on Electrical and Computer Engineering.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 771-774 4 p.

Hover flight control of a small helicopter using robust backstepping and PID
Roy, T. K., Garratt, M., Pota, H. R. & Teimoori, H., 2012, *Proceedings of the 10th World Congress on Intelligent Control and Automation.* Piscataway, NJ, p. 1688-1693 6 p.

Position control of a small helicopter using robust backstepping
Roy, T. K., 2012, *2012 7th International Conference on Electrical and Computer Engineering.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 787-790 4 p.

Robust altitude control for a small helicopter by considering the ground effect compensation
Roy, T. K., Garratt, M., Pota, H. R. & Samal, M. K., 2012, *Proceedings of the 10th World Congress on Intelligent Control and Automation WCICA 2012.* Piscataway, NJ, p. 1796-1800 5 p.

Robust altitude control of an unmanned autonomous helicopter using backstepping
Roy, T. K., Garratt, M., Pota, H. R. & Teimoori, H., 2012, *Proceedings of the 10th World Congress on Intelligent Control and Automation.* Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE), p. 1650-1654 5 p.

Awards

Projects

MQRIS26: Horizontal Solar-Driven Platform for Biomass Conversion to Green Fuel
Zhang, D. (Primary Chief Investigator), Kim, J. (Primary Chief Investigator), Huda, N. (Primary Chief Investigator), Deilami, S. (Chief Investigator), Wang, Y. (Chief Investigator), Huang, S. (Chief Investigator), Mainali, B. (Chief Investigator) & Roy, T. K. (Chief Investigator)
1/01/26 → 31/12/26