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## PROFILE

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- Dr. Ahmad Faiz Minai is currently an Associate Professor in the Electrical Engineering department at Integral University, Lucknow.
- His research focuses on renewable energy integration, solar PV system design and forecasting, solar MPPT, and AI-based performance analysis of green energy systems for sustainable development.
- His PhD research was centered on the development and integration of multilevel inverters for solar PV applications.
- He has supervised PhD students, with two students submitting their theses in April 2024 on topics related to MPPT for hybrid renewable systems and optimization of electrical distribution grids.
- He was a visiting researcher at UTM, Malaysia, from April 2024 to July 2024, contributing to collaborative work in his field.

## RESEARCH INTEREST:

- Renewable energy integration.
- Solar PV system assessment and forecasting.
- Solar PV system design and optimization.
- Maximum Power Point Tracking (MPPT) for solar systems.
- AI-based operation and performance analysis of green energy systems.
- Sustainable energy development and management.
- Fault analysis in solar panels and systems.

## SUMMARY OF RESEARCH ACCOMPLISHMENT:

- **PhD Research:** Developed and integrated multilevel inverters for solar PV applications using MATLAB/Simulink, advancing solar energy technology.
- **PhD Supervision:** Successfully supervised two PhD students, who completed theses on MPPT for hybrid renewable systems and electrical distribution grid optimization.
- **Research Publications:** Published several research papers in high-impact journals related to solar PV systems, renewable energy, and AI-based energy solutions.

- **Collaborative Research:** Engaged in interdisciplinary research collaborations, including a visiting researcher role at UTM, Malaysia, contributing to advancements in renewable energy systems.

#### PROFESSIONAL MEMBERSHIP:

- Member, IEEE (93021061);
- Life Member, Institution of Engineers (IE), India (M-157705-5)

#### COURSE TAUGHT:

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- Renewable Energy and Environment (PG), Soft Computing in Solar Photovoltaic & Wind Energy Conversion System (PG), Process Instrumentation and Control (PG), Advanced Power Electronics (PG), Field and Service Robots (PG).
- Automatic Control System (UG), Non-Conventional Energy Resources (UG), Energy Management (UG), Power Electronics Based Converters Design (UG), Electrical Circuit Theory (UG), Basic Electrical Engineering (UG), etc

#### ADMINISTRATIVE/DEPARTMENTAL RESPONSIBILITY

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- Criteria In charge: I-Curricular Aspects: Curriculum Design & Development, and VI-Governance, Leadership And Management for University accreditation through National Assessment and Accreditation Council (NAAC) 2016-17 to 2020-21 cycle & National Accreditation Board (NBA)-2012, Electrical Engineering Department.
- Program Coordinator (UG) of session 2017-18, Department of Electrical Engineering, Integral University, Lucknow, UP. INDIA. (This position is next to Head of the Department)
- Organized a Professional Development Program on Recent Trends in Green Technology for Sustainable Life in the Department of Electrical Engg, Integral University, Lucknow, India during 2nd - 16th November, 2021.
- Chaired a session 'Converter control systems' in IEEE international conference ECCE Asia 2021 at Singapore on 27.05.2021 (Online).
- Co-Chaired a session 'DC-DC converters II' in IEEE international conference ECCE Asia 2021 at Singapore on 26.05.2021 (Online).
- Organizer/Rapporteur/Member of Editorial Team in IEEE International conference CCTES-18 held on September 14-15, 2018 at Integral University, Lucknow, UP. INDIA.
- Technical, Advisory & Organizing Committee member in International Conference "Rajkiya Engineering College Conference- 2019" (REC-CON-19) (November 28-29, 2019) Organized by Department of Electrical Engineering, Rajkiya Engineering College, Ambedkar Nagar In association with J.C Bose University Of Science And Technology, YMCA, Faridabad Sponsored by & Under the banner and technical sponsorship of IEEE.
- Member of Departmental Student Placement Committee of Electrical Engineering Department.
- Installed 'Electrical Simulation Lab' in Electrical Engineering Department, Integral University, Lucknow and Jahangirabad Institute of Technology, Jahangirabad, Barabanki, India in 2015.

## STUDENTS SUPERVISION

### PhD Supervision: 05 (Defended-01, Submitted-01, under guidance-03)

S.No.	Name	Enrollment No.	Title of Thesis	Status
1.	Akhlaque A. Khan	2001145 (Registered in 2020)	Optimization, Planning and Analysis of Electrical Distribution Grid	Final Ph.D. defense on 16.08.2024
2.	Kulsoom Fatima	2001197 (Registered in 2020)	Intelligent MPPT for Hybrid Renewable Energy System	Final Ph.D. defense on 09.09.2024
3.	Mohd. A. Alam	2001194 (Registered in 2020)	Advancement in Control Topology of Bidirectional Converter for Hybrid PV System	Advance stage
4.	Qamar Alam	2100151 (Registered in 2021)	Efficient Multilevel inverter for high reliability applications	Middle Stage
5.	Raghvendra K. Yadav	2100237 (Registered in 2021)	Supervisory Control and Priority Based Design of Efficient Solar PV System	Middle Stage

### PG (M. Tech.) Dissertation Supervised:16

S.No.	Name	Enroll. No.	Title of Thesis	Session
1.	Ahmad Khubaib Minai (Co- Guide)	1300101102	Design and Cost to Benefit Analysis of a Grid- Integrated Solar Photovoltaic System	2023-24
2.	Rahul Pandey (Guide)	2000101230	Design and implementation of solar charge controller using MPPT	2022-23
3.	SoumyaKumari (Co-Guide)	2000102601	Intelligent Power flow Controller Based Solar PV-Wind Hybrid System for End Consumer	2021-22
4.	Abhay Chauhan (Guide)	1800100380	Design and Performance Analysis of Standalone Solar PV System for Distributed Generation	2019-20

5.	Munish Kumar (Co-Guide)	1700103382	IoT based Energy Management System for Smart Grid	2019-20
6.	Maqsad Raza Siddiqui (Guide)	1700101150	Reactive Power Compensation of Wind Generator Using SVC	2018-19
7.	Satish Kumar (Co-Guide)	1600102129	Solar Energy Utilization and enhancement using load scheduler	2018-19
8.	Kulsoom Fatima(Guide)	1601068001	Intelligent Solar PV Panel For Photovoltaic Power Plant	2018-19
9.	Mohd Zubair (Co-Guide)	1500102687	Closed Loop identification of a FOPDT process model and PID controller design by direct synthesis applications	2017-18
10.	Mohammad Haris Bin Anwar (Guide)	1500102913	Simulation and performance analysis of roof top grid connected solar PV system	2017-18
11.	Promod Verma (Guide)	1400101757	Topological Analysis of Multilevel Inverter for Photovoltaic system	2016-17
12.	M Usama Kidwai (Guide)	1300168008	Performance analysis of inverter topologies with less no. of switches	2015-16
13.	Zainab (Co-Guide)	06001130334	Fuzzy based thermal comfort computation and application	2014-15
14.	Shiv Karan Singh (Guide)	1200102402	Disign of ANN controller for seven link biped robot	2014-15
15.	Priyank Srivastav (Co-Guide)	1100102329	Control method of PV power point tracking based on fuzzy theory	2013-14
16.	Akhlaque Ahmad Khan (Guide)	04001130288	Performance analysis of MLI with various switching schemes	2013-14

**UG (B. Tech.) Project Supervised :14 Groups**

## PUBLISHED/GRANT PATENTS

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- Multimodal Fuzzy Logic Based Variable Pitch Angle Control System For Wind Turbines, DOP: 04.09.2020; Date of Grant: 31.07.2024
- Machine Learning Based Solar Energy Tracking System for Electric Vehicles, DOP: 11.02.2022
- Advanced optimization model for coupling powerplant to PV-Wind-Electric vehicles, DOP: 06.10.2023
- SPV Based Salinity measuring Instrument for Water Analysis, DOP: 08.03.2024
- Automatic Solar Charge Controller, DOG: 05.09.2023 (UK Patent)

## PUBLISHED/ACCEPTED SCI/SCOPUS RESEARCH PAPERS

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- A. F. Minai, A. A. Khan, K. Bahn, M. F. Ndiaye, T. Alam, R. Khargotra, T. Singh, Evolution and role of virtual power plants: Market strategy with integration of renewable based microgrids, Energy Strategy Reviews, 2024, vol 53, May 2024, 101390. ([WOS, Q1, IF 8.2](#))
- M. A. Alam, A. F. Minai, F. I. Bakhsh, Isolated Bidirectional DC-DC Converter: A Topological Review, e-Prime - Advances in Electrical Engineering, Electronics and Energy, 2024, 100594, ISSN 2772-6711. ([Elsevier, SCOPUS](#))
- K. Fatima, A. F. Minai, H. Malik, F. P. G. Marquez, Experimental Analysis of Dust Composition Impact on Photovoltaic Panel Performance: A Case Study, Solar Energy, 2023, ISSN 0038092X, Volume 267, January 2024, 112206. ([WOS, Q1, IF 6.7](#)).
- P. R. Sarkar, A. F. Minai, I. Ahamad, F. I. Bakhsh, A. A. Khan, R. K. Pachauri, Power Quality Assessment and Enhancement using FLC based SPV Supported Cascaded H-Bridge Multilevel Inverter , e-Prime - Advances in Electrical Engineering, Electronics and Energy, 2024. ([Elsevier, SCOPUS](#))
- N. Pandey, R. K. Pachauri, S. Choudhary, A. F. Minai, Power Quality Improvement using Rabbit Optimization FOPID Controlled Photovoltaic- Battery Powered Hybrid Power Filter, Renewable Energy Focus, Volume 47, 2023, 100508, ISSN 1755-0084. ([WOS, Q2, IF-4.8](#))
- M. A. Husain, S. B. Pingale, A. B. Khan, A. F. Minai, Y. Pandey, R. S. Dwivedi, Performance analysis of the global maximum power point tracking based on spider monkey optimization for PV system, Renewable Energy Focus, Volume 47, 2023, 100503, ISSN 1755-0084. ([WOS, Q2, IF-4.8](#))
- R.K. Pachauri, M. Kumar, S. B. Thanikanti, N. K. Shukla, P. Kuchhal, A. F. Minai, A. Sharma, Study on Meta-heuristics techniques for shade dispersion to enhance GMPP of PV array systems under PSCs. Sustainable Energy Technologies and Assessments 2023, Volume 58, August 2023, 103353, ([WOS, Q1, IF-8](#))

- Sharma, A.K.; Pachauri, R.K.; Choudhury, S.; Minai, A.F.; Alotaibi, M.A.; Malik, H.; Márquez, F.P.G. Role of Metaheuristic Approaches for Implementation of Integrated MPPT-PV Systems: A Comprehensive Study. Mathematics 2023, 11, 269 ([WOS, Q1, IF-2.4](#))
- A. A. Khan, A. F. Minai, A strategic review: the role of commercially available tools for planning, modelling, optimization, and performance measurement of photovoltaic systems, Energy Harvesting and Systems, 2023 ([De Gruyter, SCOPUS](#))
- S. P. Singh, M. A. Husain, A. F. Minai, F. I. Bakhsh, A. S. Ansari, A. N. Khan and Y. Pandey, A 3-Layered feedforward back-propagation ANN-based SVPWM Control For Neutral Point Clamped Converter for PV grid integration, Engineering Research Express 2023 ([WOS, Q3, IF-1.7](#))
- R. K. Pachauri, S. Motahhir, A. K. Gupta, M. Sharma, A. F. Minai, M. S. Hossain, A. Yassine, Game theory based strategy to reconfigure PV module arrangements for achieving higher GMPP under PSCs: Experimental feasibility, Energy Reports, Volume 8, 2022, Pages 10088-10112, ISSN 2352-4847([WOS, Q1, IF-5.2](#))
- Minai, A.F.; Khan, A.A.; Pachauri, R.K.; Malik, H.; Márquez, F.P.G.; Jiménez, A.A. Performance Evaluation of Solar PV-Based Z-Source Cascaded Multilevel Inverter with Optimized Switching Scheme. Electronics 2022, 11, 3706([WOS, Q2, IF-2.9](#))
- Khan, A.A.; Minai, A.F.; Pachauri, R.K.; Malik, H. Optimal Sizing, Control, and Management Strategies for Hybrid Renewable Energy Systems: A Comprehensive Review. Energies 2022, 15, 6249([WOS, Q2, IF-3.2](#))
- Minai, A.F.; Usmani, T.; Alotaibi, M.A.; Malik, H.; Nassar, M.E. Performance Analysis and Comparative Study of a 467.2 kWp Grid-Interactive SPV System: A Case Study. Energies 2022, 15, 1107([WOS, Q2, IF-3.2](#))
- Pandey, Y., Hasan, N., Husain, M. A., Khan, A. N., Bakhsh, F. I., Minai, A. F., & Tabrez, M. (2022). An Environment Friendly Energy-Saving Dispatch Using Mixed Integer Linear Programming Relaxation in the Smart Grid with Renewable Energy Sources. Distributed Generation & Alternative Energy Journal, 37(4), 1239–1258([River, SCOPUS](#))
- A. F. Minai, M.A. Husain, M. Naseem, A.A. Khan, (2021) Electricity Demand Modeling Techniques for Hybrid Solar PV System, International Journal of Emerging Electric Power System (IJEEPS), ISSN: 1553-779X, July 7, 2021 ([WOS, Q3, IF-0.26](#))
- M. Naseem, M.A. Husain, A. F. Minai, et al. (2021) Assessment of Meta-Heuristic and Classical Methods for GMPPT of PV System. Transaction on Electrical and Electronic Material. The Korean Institute of Electrical and Electronic Material Engineers, ISSN: 1229-7607([WOS, Q3, IF-1.9](#))

- A. F. Minai, T. Usmani, M. A. Mallick, Performance analysis of Multilevel inverter with SPWM strategy using MATLAB/SIMULINK, Journal of Electrical Engineering (JEE) ISSN: 1582- 4594, Vol. 16, Edition 4, page 428-433, December 2016. ([SCOPUS](#))

#### PAPER PUBLISHED IN INTERNATIONAL CONFERENCES

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- Minai, A.F., Siddiqui, M.A., Laskar, S.H., Khan, A.A., Pachauri, R.K. (2024). Performance Evaluation and Assessment of 100 kW Grid-Tied SPV System in Subtropical Climatic Conditions. In: Gabbouj, M., Pandey, S.S., Garg, H.K., Hazra, R. (eds) Emerging Electronics and Automation. E2A 2022. Lecture Notes in Electrical Engineering, vol 1088. Springer, Singapore. ([SPRINGER, SCOPUS](#))
- [A. A. Khan, A. F. Minai, M. A. Siddiqui \(2024\)](#). Feasibility and Techno-Economic Assessment of a 128kWp Grid-Tied SPV System using HOMER Pro *J. Phys.: Conf. Ser.* 2777 012008 ([Journal of Physics: Conference Series](#))
- R. K. Pachauri, R. Singh, S. Mondal, A. F. Minai, F. I. Bakhsh and Shashikant, "Performance Analysis of Dust Accumulation on PV System: An Experimental Validation," 2023 IEEE 3<sup>rd</sup> International Conference on Smart Technologies for Power, Energy and Control (STPEC), Bhubaneswar, India, 2023, pp. 1-6. ([IEEE, SCOPUS](#))
- Pachauri, R.K., Singh, R., Minai, A.F., Shashikant (2024). Marine Predictors Algorithm Optimization Technique to Estimate GMPP of PV Array Under Partial Shadowing Conditions. In: Malik, H., Mishra, S., Sood, Y.R., Iqbal, A., Ustun, T.S. (eds) Renewable Power for Sustainable Growth. ICRP 2023. Lecture Notes in Electrical Engineering, vol 1086. Springer, Singapore. ([SPRINGER, SCOPUS](#))
- Anand, R., Pachauri, R.K., Minai, A.F., Khan, A.A., Singh, R., Shashikant (2024). Energy Production from Various Bio-wastes Under Different Electrode and Temperature Conditions: Experimental Study. In: Malik, H., Mishra, S., Sood, Y.R., Iqbal, A., Ustun, T.S. (eds) Renewable Power for Sustainable Growth. ICRP 2023. Lecture Notes in Electrical Engineering, vol 1086. Springer, Singapore. ([SPRINGER, SCOPUS](#))
- Pachauri, R.K., Shukla, A., Minai, A.F., Pradhan, A., Gupta, V., Kumar, M., Shashikant (2024). Comparative Study on Solar PV Module Performance with Sun Irradiance Trapping Mechanism: Power Generation Forecasting Using Machine Learning. In: Malik, H., Mishra, S., Sood, Y.R., Iqbal, A., Ustun, T.S. (eds) Renewable Power for Sustainable Growth. ICRP 2023. Lecture Notes in Electrical Engineering, vol 1086. Springer, Singapore. ([SPRINGER, SCOPUS](#))
- Kumar, M., Pachauri, R.K., Kuchhal, P., Minai, A.F., Shashikant (2023). A Modified Ion-Motion Optimization Algorithm for Optimal Generation Scheduling in Multi-area Power System. In: Rani, A., Kumar, B., Shrivastava, V., Bansal, R.C. (eds) Signals, Machines and Automation. SIGMA 2022. Lecture Notes in Electrical Engineering, vol 1023. Springer, Singapore. ([SPRINGER, SCOPUS](#))

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- [A. F. Minai, A. A. Khan, M. A. Siddiqui, F. I. Bakhsh, M. A. Hussain and R. K. Pachauri](#), "Genetic Algorithm Based SPV System with Cascaded H-Bridge Multilevel Inverter," 2023 International Conference on Power, Instrumentation, Energy and Control (PIECON), Aligarh, India, 2023, pp. 1-6, doi: 10.1109/PIECON56912.2023.10085864. ([IEEE, SCOPUS](#))
- S. Sharma, R. K. Pachauri, R. Mavi, Shashikant and A. F. Minai, "Simulation, Design and Modeling of Lead-Free Double Halide Perovskite Solar Cell," 2023 International Conference on Power, Instrumentation, Energy and Control (PIECON), Aligarh, India, 2023, pp. 1-5, doi: 10.1109/PIECON56912.2023.10085788. ([IEEE, SCOPUS](#))
- [A. F. Minai, A. A. Khan, M. A. Siddiqui, R. K. Pachauri, A. Raj](#), "Design and cost study of a 25 kW SPV system based on real performance in an Indian environment", (2023) Fifth International Conference on Intelligent Communication, Control and Devices (ICICCD-2022), UPES, Dehradun, 11-12 November, 2022 ([River, SCOPUS](#))
- M. Nazim, F. A. Khan, A. F. Minai, M. Asim, M. A. Mallick, M. Ahmad, "IoT enabled Solar PV Maximum Power Tracking System", (2023) Fifth International Conference on Intelligent Communication, Control and Devices (ICICCD-2022), UPES, Dehradun, 11-12 November, 2022 (River, SCOPUS), UPES, Dehradun, 11-12 November, 2022 ([River, SCOPUS](#))
- R.K. Pachauri, M. Kumar, A.K. Gupta, A.F. Minai, A. Sharma. Grasshopper Optimization Technique for PV Array Reconfiguration to Achieve Higher GMPP Under PSCs. In: Reddy, K.R., Kalia, S., Tangellapalli, S., Prakash, D. (eds) Recent Advances in Sustainable Environment 2022. Lecture Notes in Civil Engineering, vol 285. Springer, Singapore ([SPRINGER, SCOPUS](#))
- Kumari, S., Sarkar, P.R., Pandey, A.K., Minai, A.F., Singh, S.K. (2022). Modelling and Implementation of MPPT Controller for Off-Grid SPV System. In: Namrata, K., Priyadarshi, N., Bansal, R.C., Kumar, J. (eds) Smart Energy and Advancement in Power Technologies. Lecture Notes in Electrical Engineering, vol 926. Springer, Singapore ([SPRINGER, SCOPUS](#))
- R. K. Pachauri and A. F. Minai, "PV Array Topology Design and Performance Evaluation under Partial Shade Situations to Reduce Mismatching Power Losses," 2022 IEEE International Conference on Current Development in Engineering and Technology (CCET), Bhopal, India, 2022, pp. 1-6, doi: 10.1109/CCET56606.2022.10080547. ([IEEE, SCOPUS](#))



- R. K. Pachauri, P. K. Gupta, M. Sharma, A. K. Gupta, A. F. Minai and Shashikant, "Performance Comparison of Various Photovoltaic Module Arrangements based on Game Puzzle Theory under PSCs: Experimental Validation," 2022 International Conference on Smart Generation Computing, Communication and Networking (SMART GENCON), Bangalore, India, 2022, pp. 1-6, doi: 10.1109/SMARTGENCON56628.2022.10084172.[\(IEEE, SCOPUS\)](#)
- R. K. Pachauri, A. F. Minai, P. Kuchhal, V. Jha and Shashikant, "Munkres assignment algorithm for optimal reconfiguration to improve GMPP of partially shaded PV array system," 2022 4th International Conference on Circuits, Control, Communication and Computing (I4C), Bangalore, India, 2022, pp. 193-198, doi: 10.1109/I4C57141.2022.10057783.[\(IEEE, SCOPUS\)](#)
- P. R. Sarkar, A. F. Minai, M. S. Bhaskar, R. K. Pachauri and Sashikant, "Examination of MPPT Algorithm on Three Step DC-DC Converter," 2022 IEEE 9th Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON), 2022, pp. 1-6, doi: 10.1109/UPCON56432.2022.9986394.[\(IEEE, SCOPUS\)](#)
- R. K. Pachauri, A. F. Minai, P. Kuchhal, V. Jha and Shashikant, "PV Array Reconfiguration Methods based on Game Theory to Eliminate Shading Effect during Non-uniform Irradiations: Experimental Feasibility," 2022 Smart Technologies, Communication and Robotics (STCR), Sathyamangalam, India, 2022, pp. 1-6, doi: 10.1109/STCR55312.2022.10009493.[\(IEEE, SCOPUS\)](#)
- M. A. Siddiqui, M. Nishat Anwar, A. F. Minai, A. Ahmad Khan, M. Naseem and A. Jabbar, "A Direct Synthesis based Sliding Mode Control of a Nonlinear Continuous Stirred Tank Reactor," IECON 2022 – 48<sup>th</sup> Annual Conference of the IEEE Industrial Electronics Society, 2022, pp. 1-6, doi: 10.1109/IECON49645.2022.9969082.[\(IEEE, SCOPUS\)](#)
- R. K. Pachauri, R. Swain, A. F. Minai and F. I. Bakhsh, "Improved Magic Square Game theory based SPV Array Reconfiguration Method to Improve Shade Dispersion Factor under PSCs," 2022 1<sup>st</sup> International Conference on Sustainable Technology for Power and Energy Systems (STPES), SRINAGAR, India, 2022, pp. 1-6, doi: 10.1109/STPES54845.2022.10006423.[\(IEEE, SCOPUS\)](#)
- M. K. Pardhe, R. K. Pachauri, A. F. Minai and Shashikant, "Swarm Optimization based PV Array Reconfiguration to Achieve Higher GMPP during Partial Shadowing Situations," 2022 IEEE Students Conference on Engineering and Systems (SCES), 2022, pp. 1-6, doi: 10.1109/SCES55490.2022.9887755.[\(IEEE, SCOPUS\)](#)
- M. A. Alam, A. F. Minai and F. I. Bakhsh, "Comparative Performance Analysis of Triple Phase Shift & Extended Phase Shift in IBDC," 2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET), 2022, pp. 1-5, doi: 10.1109/ICEFEET51821.2022.9847824.[\(IEEE, SCOPUS\)](#)

- R. K. Pachauri, M. K. Pardhe, Shashikant, A. F. Minai, V. Pandey and A. Raj, "Butterfly Optimization Algorithm for PV Array Reconfiguration to Achieve Higher GMP during PSCs," 2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET), 2022, pp. 1-6, doi: 10.1109/ICEFEET51821.2022.9847673. [\(IEEE, SCOPUS\)](#)
- M. Naseem, M. A. Husain, J. D. Kumar, A. F. Minai, A. Ahmad, S. M. Ali, A. S. Ansari, "A Spider Monkey Optimization Based Global Maximum Power Point Tracking Technique for Photovoltaic Systems," 2022 2nd International Conference on Emerging Frontiers in Electrical and Electronic Technologies (ICEFEET), 2022, pp. 1-6, doi: 10.1109/ICEFEET51821.2022.9847903. [\(IEEE, SCOPUS\)](#)
- S. O. GyanTorto, R. Kumar Pachauri, A. F. Minai, A. Siddiqui and A. Sharma, "PV Module Reconfigurable Approach using SM for Power Loss Reduction under Detrimental Shadowing Conditions," 2022 3rd International Conference for Emerging Technology (INCET), 2022, pp. 1-6, doi: 10.1109/INCET54531.2022.9823969. [\(IEEE, SCOPUS\)](#)
- R. K. Pachauri, A. K. Gupta, A. F. Minai, M. Kumar and Shashikant, "Su-Do-Ku Game Puzzle for Improving Shade dispersion factor on PV Array Systems under PSCs: Experimental Validation," 2022 International Conference on Emerging Smart Computing and Informatics (ESCI), 2022, pp. 1-6, doi: 10.1109/ESCI53509.2022.9758362. [\(IEEE, SCOPUS\)](#)
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- [A. F. Minai](#), A. Tariq and Q. Alam, "Theoretical and experimental analysis of photovoltaic water pumping system," India International Conference on Power Electronics 2010 (IICPE2010), 2011, pp. 1-8, doi: 10.1109/IICPE.2011.5728130.[\(IEEE, SCOPUS\)](#)
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## BOOK CHAPTERS

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