

Dr. SOMUDEEP BHATTACHARJEE

Research Interests:

Hybrid energy system, Renewable energy, Energy management system, Energy cost analysis, Climate Change, Greenhouse emissions



Email: somudeepbhattacharjeephd@gmail.com

EDUCATIONAL QUALIFICATION:

| DEGREE | SCORE | INSTITUTION | YEAR OF PASSING |
|----------------------------------|-------------|---|-----------------|
| PhD in Electrical Engineering | Completed | Tripura University (A Central University) | 2023 |
| M.Tech in Electrical Engineering | 9.38 (CGPA) | Tripura University (A Central University) | 2018 |
| B.E. in Electrical Engineering | 7.92 (CGPA) | Tripura Institute of Technology, Narsingarh | 2016 |
| Class 12th | 79.4% | Kendriya Vidyalaya No.1, Kunjaban | 2012 |
| Class 10th | 74.1% | Kendriya Vidyalaya No.1, Kunjaban | 2010 |

Teaching Areas:

DC Microgrid and Control System, Electrical Distribution Analysis and Hybrid energy system

RESEARCH PUBLICATIONS:**A. LIST OF BOOK CHAPTERS**

| All Authors | Title of the chapter | Book Editors | Name of the book | Name of book series | Publishers | Year | Online ISBN | Page Number |
|--|--|--|---|--|-----------------------------------|------|-------------------|-------------|
| Uttara Das, Somudeep Bhattacharjee , Sarbani Mandal and Champa Nandi | Modeling of a Grid-Connected Sustainable Energy Source Based Hybrid System for Pollution-Free Future | K. Namrata, , N. Priyadarshi, R.C. Bansal, J. Kumar | Smart Energy and Advancement in Power Technologies | Lecture Notes in Electrical Engineering (Scopus Indexed) | Springer | 2023 | 978-981-19-4975-3 | 703–714 |
| Rupan Das, Somudeep Bhattacharjee and Uttara Das | Importance of Hybrid Energy System in Reducing Greenhouse Emissions | S. Kumar, N. Gupta, S. Kumar, S. Upadhyay | Renewable Energy Systems: Modeling, Optimization and Applications | - (Scopus Indexed) | Wiley-Scrivener Publishing | 2022 | 9781119804017 | 1-27 |
| Uttara Das, Champa Nandi, Somudeep Bhattacharjee and Sarbani Mandal | Energy Impacts on Climate Change: Issues, Challenges and Solutions with Clean Conversion Technology | W. Leal Filho, E. Manolas | Climate Change in the Mediterranean and Middle Eastern Region | Climate Change Management (Scopus Indexed) | Springer | 2022 | 978-3-030-78566-6 | 133-149 |

| | | | | | | | | |
|---|---|--|---|--|-----------------|------|-------------------|---------|
| Somudeep Bhattacharjee and Champa Nandi | Design of an Industrial Internet of Things-Enabled Energy Management System of a Grid-Connected Solar-Wind Hybrid System-Based Battery Swapping Charging Station for Electric Vehicle | J. Mandal, S. Mukhopadhyay, A. Roy | Applications of Internet of Things | Lecture Notes in Networks and Systems (Scopus Indexed) | Springer | 2021 | 978-981-15-6198-6 | 1-14 |
| Somudeep Bhattacharjee, Uttara Das, Moumita Chowdhury and Champa Nandi | Role of Hybrid Energy System in Reducing Effects of Climate Change | Hassan Qudrat-Ullah, Muhammad Asif | Dynamics of Energy, Environment and Economy | Lecture Notes in Energy (Scopus Indexed) | Springer | 2020 | 978-3-030-43578-3 | 115-138 |
| Somudeep Bhattacharjee and Champa Nandi | Design of a Smart Energy Management Controller for Hybrid Energy System to Promote Clean | Akash Kumar Bhoi, Karma Sonam Sherpa, Akhtar Kalam, Gyoo-Soo | Advances in Greener Energy Technologies | Green Energy and Technology (Scopus Indexed) | Springer | 2020 | 978-981-15-4246-6 | 527-563 |

| | | | | | | | | |
|--|---|---|---|---|-----------------|------|-------------------|---------|
| | Energy | Chae | | | | | | |
| Somudeep Bhattacharjee, Samrat Chakraborty and Champa Nandi | An Optimization Case Study of Hybrid Energy System in Four Different Regions of India | Akash Kumar Bhoi, Karma Sonam Sherpa, Akhtar Kalam, Gyoo-Soo Chae | Advances in Greener Energy Technologies | Green Energy and Technology (Scopus Indexed) | Springer | 2020 | 978-981-15-4246-6 | 399-437 |
| Somudeep Bhattacharjee and Champa Nandi | Implementation of Industrial Internet of Things in the Renewable Energy Sector | Z. Mahmood | The Internet of Things in the Industrial Sector | Computer Communications and Networks | Springer | 2019 | 978-3-030-24892-5 | 223-259 |
| Champa Nandi, Somudeep Bhattacharjee and Samrat Chakraborty | Climate Change and Energy Dynamics with Solutions: A Case Study in Egypt | H. Qudrat-Ullah, A. A. Kayal | Climate Change and Energy Dynamics in the Middle East | Understanding Complex Systems (Scopus Indexed) | Springer | 2019 | 978-3-030-11202-8 | 225-257 |

B. LIST OF REFERRED JOURNALS

1. **Somudeep Bhattacharjee**, Ivan Das, Champa Nandi, “A data-centric analysis of climate change in India: A reflection on electricity sector”, Technological Forecasting & Social Change, Volume 190, 122400, pp. 1-17, 118977, pp. 1-15, February 2023. (Scopus Indexed and SSCI Indexed)

2. Samrat Chakraborty , Debottam Mukherjee, Pabitra Kumar Guchhait, **Somudeep Bhattacharjee**, Almoataz Youssef Abdelaziz and Adel El-Shahat , “Optimum Design of a Renewable-based Integrated Energy System in Autonomous mode for a Remote Hilly Location in North Eastern India”, *Energies*, Volume 16, 1588, pp.1-30, 2023. (**SCIE Indexed and Scopus Indexed**)
3. Uttara Das, Champa Nandi, Sarbani Mandal, **Somudeep Bhattacharjee**, “A systematic literature review on hybrid energy system”, *Energy and Environment*, pp. 1-33, 2022. (**SSCI Indexed and Scopus Indexed**)
4. Uttara Das, Sarbani Mandal, **Somudeep Bhattacharjee**, Champa Nandi, “A review of different configuration of hybrid energy systems with case study analysis”, *International journal of environment and sustainable development*, Volume 21, No.1/2, pp. 116-137, 2021. (**Scopus Indexed and ESCI Indexed**)
5. **Somudeep Bhattacharjee**, Champa Nandi, “Technical feasibility study and optimization analysis on solar-biomass based pumped storage hydropower plant”, *International journal of environment and sustainable development*, Volume 20, No.3/4, pp. 404-429, 2021. (**Scopus Indexed and ESCI Indexed**)
6. **Somudeep Bhattacharjee**, Champa Nandi, “Design of a voting based smart energy management system of the renewable energy based hybrid energy system for a small community”, *Energy*, Volume 214, 118977, January 2021. (**SCI Indexed, Scopus Indexed and SCIE Indexed**)
7. **Somudeep Bhattacharjee**, Rupan Das, Gagari Deb, Brahma Nand Thakur, “Techno-Economic Analysis of a Grid-Connected Hybrid System in Portugal Island”, *International Journal of Computer Sciences and Engineering*, Volume 7, Issue 1, pp.1-14, January 2019.
8. Champa Nandi, **Somudeep Bhattacharjee**, Susmita Reang, “An Optimization Case Study of Hybrid Energy System Based Charging Station for Electric Vehicle on Mettur, Tamil Nadu”, *International Journal of Advanced Scientific Research and Management*, Volume 3, Issue 11, pp. 225-231, November 2018.
9. **Somudeep Bhattacharjee**, Samrat Chakraborty, Brahma Nand Thakur, Mir Sahidul Ali, “Modelling, Optimization and Cost Analysis of Grid Connected Solar-Battery System for Tripura University Campus”, *International Journal of Advanced Scientific Research and Management*, Volume 3, Issue 9, pp. 23 –31, September 2018.
10. **Somudeep Bhattacharjee**, Samrat Chakraborty, Bishal Biswadutta Jena, Subhadeep Deb, Rupan Das, “An Optimization Study of both On-Grid and Off Grid Solar-Wind-Biomass Hybrid Power Plant in Nakalawaka, Fiji”, *International Journal for Research in Applied Science & Engineering Technology*, Volume 6 Issue IV, pp. 3823-3834, April 2018.
11. Aditi Datta, Anjan.K.Ghosh, Anjan Mukherjee, Richa Debnath, Rakesh Dey, **Somudeep Bhattacharya**, Sayan Paul, Ujjayanta Dey, “Implementation of Chaos Masking Communication

Scheme using Chaotic Electro Optic Modulator, Realized with the Help of OPAMP based Electronic Circuit”, International Journal of Engineering Technology, Management and Applied Sciences, Volume 5, Issue 6, pp. 675-680, June 2017.

C. LIST OF REFERRED CONFERENCE PROCEEDINGS

1. Samrat Chakraborty, **Somudeep Bhattacharjee**, Debottam Mukherjee, Brahma Nand Thakur, Champa Nandi, “A Novel Energy Management System for Renewable-based Hybrid Power Plant”, Proceedings of 2nd Odisha International Conference on Electrical Power Engineering, Communication and Computing Technology (ODICON), IEEE Xplore, January 2022. (**Scopus Indexed**)
2. Uttara Das, **Somudeep Bhattacharjee**, Sarbani Mandal, Champa Nandi, “Economic case study of on-grid wind-pumped storage hybrid system in a hydroelectric plant of Tamil Nadu”, Proceedings of 2nd International Conference on Power, Control and Computing Technologies (ICPC²T), IEEE Xplore, May 2022. (**Scopus Indexed**)
3. **Somudeep Bhattacharjee**, Champa Nandi, “Technical, economic, feasibility and comparative analysis of three different configurations of energy system to control intermittency of renewable energy”, Proceedings of 2nd International Conference on Information systems & Management science (ISMS) 2019, SSRN Electronic Journal, pp. 117-124, January 2020. (**Scopus Indexed**)
4. **Somudeep Bhattacharjee**, Champa Nandi, Sushmita Reang, “Intelligent Energy Management controller for Hybrid System”, Proceedings of 2018 3rd IEEE International Conference for Convergence in Technology (I2CT), IEEE Xplore, November 2018. (**Scopus Indexed**)
5. **Somudeep Bhattacharjee**, Saima Batool, Champa Nandi, Udsanee Pakdeetrakulwong, “Investigating Electric Vehicle (EV) Charging Station Locations for Agartala, India”, Proceedings of 2nd International Conference of Multidisciplinary Approaches on UN Sustainable Development Goals (UNSDGs), December 2017.

D. LIST OF PAPERS ACCEPTED IN CONFERENCES

1. Samrat Chakraborty, **Somudeep Bhattacharjee**, Debottam Mukherjee, Brahma Nand Thakur, Champa Nandi, “A Novel Energy Management System for Renewable-based Hybrid Power Plant”, 2nd Odisha International Conference on Electrical Power Engineering, Communication and Computing Technology (ODICON), Bhubaneswar, India, 11-12 November, 2022.
2. Champa Nandi, Uttara Das, **Somudeep Bhattacharjee**, “The impact of Covid-19 on climate change and clean energy generation: Review, Opportunities, Challenges and Future direction”, International Conference on “Technological Interventions for Sustainability (Chem-Conflux22)”, Allahabad, Prayagraj, 14-16 April, 2022.

3. Uttara Das, **Somudeep Bhattacharjee**, Sarbani Mandal, Champa Nandi, “Economic case study of on-grid wind-pumped storage hybrid system in a hydroelectric plant of Tamil Nadu”, 2nd International Conference on Power, Control and Computing Technologies (ICPC²T), Raipur, India, 01-03 March, 2022.
4. Uttara Das, **Somudeep Bhattacharjee**, Sarbani Mandal, Champa Nandi, “Modeling of a grid connected sustainable energy source based hybrid system for pollution-free future”, 1st International Conference on Smart Energy and Advancement in Power Technologies (ICSEAPT-2021), Jharkhand, India, 06–08 September, 2021.
5. **Somudeep Bhattacharjee**, Champa Nandi, “Design of an IIoT enabled Energy Management System of a Grid Connected Solar-Wind Hybrid System based Battery Swapping Charging Station for Electric Vehicle”, International Conference on Computer Communication and Internet Of Things (ICCCIOT- 2020), Tripura, India, 03-04 February, 2020.
6. **Somudeep Bhattacharjee**, Champa Nandi, “Technical, economic, feasibility and comparative analysis of three different configurations of energy system to control intermittency of renewable energy”, 2nd International Conference on Information systems & Management science (ISMS-2019), Tripura, India, 06-07 December, 2019.
7. **Somudeep Bhattacharjee**, Champa Nandi, “Technical feasibility study and optimization analysis on solar-biomass based pumped storage hydropower plant”, 2nd International Conference on New and Renewable Energy Resources for sustainable future (ICONRER-2019), Jaipur, India, 7-9 November, 2019.
8. Uttara Das, Sarbani Mandal, **Somudeep Bhattacharjee**, Champa Nandi, “A review on renewable energies and its advantages on hybrid power generation”, 2nd International Conference on New and Renewable Energy Resources for sustainable future (ICONRER-2019), Jaipur, India, 7-9 November, 2019.
9. **Somudeep Bhattacharjee**, Champa Nandi, Sushmita Reang, “Intelligent Energy Management controller for Hybrid System”, 2018 3rd IEEE International Conference for Convergence in Technology (I2CT), Pune, India, 06-08 April, 2018.
10. **Somudeep Bhattacharjee**, Saima Batool, Champa Nandi, Udsanee Pakdeetrakulwong, “Investigating Electric Vehicle (EV) Charging Station Locations for Agartala, India”, The 2nd International Conference of Multidisciplinary Approaches on UN Sustainable Development Goals (UNSDGs), Bangkok, Thailand, 28-29 December 2017.
11. Aditi Datta, Anjan.K.Ghosh, Anjan Mukherjee, Richa Debnath, Rakesh Dey, **Somudeep Bhattacharya**, Sayan Paul, Ujjayanta Dey, “Implementation of Chaos Masking Communication Scheme using Chaotic Electro Optic Modulator, Realized with the Help of OPAMP based

Electronic Circuit”, International Conference on Advancement in Engineering, Applied Science and Management (ICAEASM-2017), Juhu, Mumbai, Maharashtra, India, 18 June 2017.

WORK EXPERIENCE AND TRAINING:

A. Teaching Experience

(i) Guest Faculty in Electrical Engineering Department, Tripura University (A Central University), India

Subjects: DC Microgrid and control system.

Time: 26th July, 2022 to till date.

Class of 3rd Semester 2nd Year M.tech Students

(ii) Guest Faculty in Electrical and Electronics Engineering Department, ICFAI University, Tripura

Subjects: Electrical Machines II, Power System II, Line-Commutated and Active PWM Rectifier, Electrical Machines II Practical and Power Systems Lab.

Time: 6th April 2022 to 22nd July, 2022

Class of 2nd Semester 2nd Year B.tech Students and 2nd Semester 3rd Year B.tech Students

B. Volunteer Teaching Experience

(i) Subject teacher in Electrical Engineering Department, Tripura University (A Central University), India

Subject: Digital Signal Processing

Time: 2nd August 2019 to 18th November 2019 (During PhD)

Class of 1st Semester 1st Year M.tech Students

(ii) Lab teacher in Electrical Engineering Department, Tripura University (A Central University), India

Subject: Power Electronics Laboratory

Time: 25th January 2018 to 19th April 2018 (During M.Tech)

Class of 2nd Semester 1st Year M.tech Students

(iii) Lab teacher in Electrical Engineering Department, Tripura University (A Central University), India

Subject: Control System Laboratory

Time: 20th July 2017 to 20th November 2017 (During M.Tech)

Class of 1st Semester 1st Year M.tech Students

(iv) Lab teacher in Electrical Engineering Department, Tripura University, Agartala

Subject: Power System Simulation Laboratory

Time: 20th July 2017 to 22th September 2017 (During M.Tech)

Class of 1st Semester 1st Year M.tech Students

C. Vocational Training

- Vocational Training on power system at Agartala airport, Tripura.
- Vocational Training at 66 kV Badharghat sub-station, Agartala, Tripura.
- Vocational Training at OTPC, Palatana, Gomati District, Tripura

WORKSHOPS/SEMINARS/WEBINAR:

| Serial Number | Name of the Workshops/Seminars/Webinars | Date |
|----------------------|--|---|
| 1 | 5 th One-Week National Workshop on "Emerging Tools and Technologies in Research" | 28 th November 2022 to 2 nd December 2022 |
| 2 | 5-day short term training program (STTP) on, "Electronics System: Devices, IC and Applications" | 14 th March 2022 to 18 th March 2022 |
| 3 | One-week Short Term Course on, "Energy Conservation for Sustainable Society: Innovation and Entrepreneurial Opportunity" | 27 th February, 2022 to 4 th March, 2022 |
| 4 | 4 th One-Week National Workshop on "Emerging Tools and Technologies in Research" | 14 th to 18 th December, 2021 |
| 5 | National Level Webinar on "Systematic Literature Review Research Methodology" | 25 th January, 2021 |
| 6 | Online Faculty Development Programme on "Energy and Environment : Conversion, generation, storage and efficient utilization" | 24 th to 28 th August, 2020 |
| 7 | National Workshop on "Data Science and Data Mining", AICTE-ATAL Academy | 10 th to 14 th February, 2020 |
| 8 | National Workshop on "Machine Learning and Artificial Intelligence", AICTE-ATAL Academy | 13 th to 17 th January, 2020 |
| 9 | National Workshop on "Emerging Tools and Technologies in Research" | 5 th to 9 th November, 2019 |

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|----|--|--|
| 10 | Online Webinar Delivered by Dr. Vidyasagar Potdar from Curtin University, Australia on “How to Publish a Literature Review in SCI and SCOPUS Indexed Journals” | 20 th November, 2018 |
| 11 | Online Webinar Delivered by Dr. Vidyasagar Potdar from Curtin University, Australia on “Conducting High Quality Research” | 12 th November, 2018 |
| 12 | Workshop on “E Waste Management” | 12 th April 2018 |
| 13 | Workshop on “Energy Production and management” | 19 th to 23 rd March, 2018 |
| 14 | Workshop on “Emerging Trends in Renewable Energies” | 12 th to 16 th March, 2018 |
| 15 | Seminar on “Scientific Issues for the Development of the Nation” | 28 th February, 2018 |
| 16 | Short term workshop on “Power Electronics and its Scope of Application in North East India” | 23 rd to 25 th July, 2017 |
| 17 | Workshop on “ Home Automation System” | 22 nd to 23 rd November, 2016 |
| 18 | Workshop on “ Smart Grid: Secure and Sustainable Energy” | 16 th to 25 th September, 2016 |
| 19 | Seminar on “Power Development Scenario in Tripura and Bangladesh” | 25 th March 2016 |

AREAS OF RESEARCH INTEREST:

- Hybrid Energy System
- Energy Management System
- Renewable Energy
- Power Generation
- Climate Change
- Energy Cost Analysis

DETAILS OF RESEARCHGATE AUTHOR PROFILE:

ResearchGate: https://www.researchgate.net/profile/Somudeep_Bhattacharjee

Research Interest: 179.3
Citations: 147
Reads: 14,527
Recommendations: 142
h-index: 8
Last Updated: 1st April 2023

DETAILS OF GOOGLE SCHOLAR AUTHOR PROFILE:

Google Scholar: <https://scholar.google.com/citations?authuser=1&user=cfd9ZzcAAAAJ>
Citations: 149
h-index: 8
i10-index: 5
Last Updated: 1st April 2023

DETAILS OF SCOPUS AUTHOR PROFILE:

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=57205026124>
Citations: 90
h-index: 6
Documents by author: 17
Last Updated: 1st April 2023

KEY SKILLS:

A. Software Tools

- HOMER,
- HOMER Pro,
- MATLAB-Simulink and
- MS office.

B. Strengths:

- Good in handling and completing Research Projects,
- Quick Learner,
- Creative thinker,
- Responsible,
- Goal-oriented,

- Multi-tasking,
- Good listener,
- Hard working,
- Good team leader and
- Good team player.

ACHIEVEMENTS/AWARDS:

Best paper award for my research paper “Design of an IIoT enabled Energy Management System of a Grid Connected Solar-Wind Hybrid System based Battery Swapping Charging Station for Electric Vehicle” in International Conference on Computer Communication and Internet Of Things (ICCCIOT- 2020).

LIST OF COMPETITIVE EXAMS QUALIFIED:

- RET (Research Eligibility Test) of Tripura University in 2018 for PhD in Electrical Engineering.
- M.tech Entrance Test of Tripura University in 2016 for M.Tech in Electrical Engineering.
- TBJEE (Tripura Board of Joint Entrance Examination) in 2012 for B.tech in Electrical Engineering.

INTERNATIONAL JOURNAL REVIEWER:

A. Energy and Environment Journal

Impact factor: 2.945 (2020)

Publisher: SAGE publications

Abstracting and Indexing: Clarivate Analytics: Social Sciences Citation Index (SSCI), EBSCO, Ei Compendex, ProQuest and Scopus.

B. Environment, Development and Sustainability journal

Impact factor: 3.219 (2020)

Publisher: SPRINGER publications

Abstracting and Indexing: Science Citation Index Expanded (SCIE), UGC-CARE List (India), Scopus, SCImago etc.

C. International journal of Power and Energy System

Impact factor: 0.56 (2020)

Publisher: ACTA Press

Abstracting and Indexing: ESCI- Web of Science, EBSCO, Ei Compendex, Inspec, Google Scholar and Scopus.

D. MethodsX journal

Impact factor: 1.837 (2022)

Publisher: Elsevier

Abstracting and Indexing: Emerging Sources Citation Index (ESCI), Directory of Open Access Journals (DOAJ), Scopus and PubMed Central.

E. Renewable Energy Focus journal

Impact factor: 4.082 (2022)

Publisher: Elsevier

Abstracting and Indexing: Emerging Sources Citation Index (ESCI), INSPEC and Scopus.

PERSONAL DETAIL:

| | | |
|------------------|---|---|
| Gender | : | Male |
| Languages Spoken | : | English, Hindi |
| Hobbies | : | Reading Books, Writing Stories, Drawing |

ABOUT ME:

I love to work hard. I am looking for a career which will give me an opportunity for exploring more and gathering more knowledge.