Dr. Jatinkumar Soni

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Field(s) of Specialization: Power System Optimization, Renewable Energy Integration, Electric Vehicles and Energy Management, Soft Computing
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Career Objective

To contribute to teaching, research, and innovation in the field of Electrical Engineering, focusing on power systems, renewable energy, and optimization methods, while inspiring students through high-quality instruction and applied research.

Education

- **Ph.D. (Electrical Engineering)**, Institute of Technology, Nirma University, Gujarat (2020–2025)
  Thesis: *Solution of Economic Load Dispatch Problems with Renewable Energy Sources and Electric Vehicles.*
- **M.E. (Electrical Engineering)**, Lukhdhirji Government Engineering College, GTU, Gujarat (2016–2018) — CGPA: 8.30/10.
- **B.E. (Electrical Engineering)**, Birla Vishvakarma Mahavidyalaya, GTU, Gujarat (2012–2016) — CGPA: 7.46/10.
- Higher Secondary (2012) — 85.50%, Gujarat Higher Secondary Education Board.
- Secondary (2010) — 86.00%, Gujarat Secondary Education Board.

Professional Experience

- **Assistant Professor**, School of Electrical Engineering, Shri Mata Vaishno Devi University, Katra
  Dec 2024 – Present
  Delivering undergraduate courses in Power Systems and Renewable Energy Integration; supervising student projects focused on optimization and electric vehicle applications.
- **Technical Assistant**, Department of Electrical Engineering, National Institute of Technology Delhi
  Aug 2023 – Nov 2024
  Maintained and calibrated laboratory equipment; supported examinations and academic documentation; assisted faculty in research and technical activities.
- **Junior Laboratory Assistant**, Department of Electrical Engineering, Indian Institute of Technology Gandhinagar
  Jan 2022 – Aug 2023
  Managed and maintained experimental setups for electrical laboratories; facilitated lab-based learning for undergraduate and postgraduate students.
- **Assistant Professor**, Department of Electrical Engineering, Institute of Technology, Ganpat University, Gujarat
  Aug 2018 – Jan 2022
  Taught Power Systems, Electrical Machines, and Renewable Integration; guided student research projects and coordinated departmental academic activities.

Publications

Journal Articles

[1] **Jatin Soni** and Kuntal Bhattacharjee. *Economic Emission Load Dispatch with Renewable Energy and Electric Vehicle Integration: A Real-Data Approach Using Equilibrium Optimizer.* **Indian Journal of Pure & Applied Physics (IJPAP)**, vol. 63, pp. 930–944, 2025. (Impact Factor: 1.1)

[2] Diwakar Verma, **Jatin Soni**, and Kuntal Bhattacharjee. *A novel artificial electric field strategy for economic load dispatch problem with renewable penetration.* **Evolutionary Intelligence**, pp. 1–16. Springer, 2024. (Impact Factor: 2.3)

[3] **Jatin Soni** and Kuntal Bhattacharjee. *A multi-objective economic emission dispatch problem in microgrid with high penetration of renewable energy sources using equilibrium optimizer.* **Electrical Engineering**, pp. 1–16. Springer, 2024. (Impact Factor: 1.8)

[4] **Jatin Soni** and Kuntal Bhattacharjee. *Multi-objective dynamic economic emission dispatch integration with renewable energy sources and plug-in electrical vehicle using equilibrium optimizer.* **Environment, Development and Sustainability**, vol. 26, pp. 8555–8586. Springer, 2024. (Impact Factor: 4.9)

[5] **Jatin Soni** and Kuntal Bhattacharjee. *Integrating renewable energy sources and electric vehicles in dynamic economic emission dispatch: an oppositional-based equilibrium optimizer approach.* **Engineering Optimization**, pp. 1–35. Taylor & Francis, 2024. (Impact Factor: 2.7)

[6] **Jatin Soni** and Kuntal Bhattacharjee. *Equilibrium optimizer for multi-objective dynamic economic emission dispatch integration with plug-in electric vehicles and renewable sources.* **Multiscale and Multidisciplinary Modeling, Experiments and Design**, pp. 1–17. Springer, 2024. (Impact Factor: 2.2)

[7] **Jatin Soni** and Kuntal Bhattacharjee. *Sine-cosine algorithm for the dynamic economic dispatch problem with the valve-point loading effect.* **International Journal of Swarm Intelligence Research (IJSIR)**, vol. 14, pp. 1–15. IGI Global, 2023.

[8] **Jatin Soni** and Kuntal Bhattacharjee. *Equilibrium optimiser for the economic load dispatch problem with multiple fuel option and renewable sources.* **International Journal of Ambient Energy**, vol. 44, pp. 2386–2397. Taylor & Francis, 2023.

[9] Kathan Shah, **Jatin Soni**, and Kuntal Bhattacharjee. *Artificial electric field algorithm applied to the economic load dispatch problem with valve point loading effect: AEFA applied to ELD with VPLE.* **International Journal of Swarm Intelligence Research (IJSIR)**, vol. 14, pp. 1–23. IGI Global, 2023.

[10] Diwakar Verma, **Jatin Soni**, Dhruv Kalathia, and Kuntal Bhattacharjee. *Sine cosine algorithm for solving economic load dispatch problem with penetration of renewables.* **International Journal of Swarm Intelligence Research (IJSIR)**, vol. 13, pp. 1–21. IGI Global, 2022.

[11] **Jatin Soni** and Kuntal Bhattacharjee. *Sooty tern optimization algorithm for solving the multi-objective dynamic economic emission dispatch problem.* **International Journal of Swarm Intelligence Research (IJSIR)**, vol. 13, pp. 1–15. IGI Global, 2022.

[12] Kuntal Bhattacharjee, Kathan Shah, and **Jatin Soni**. *Solving economic dispatch using artificial ecosystem-based optimization.* **Electric Power Components and Systems**, vol. 49, pp. 1034–1051. Taylor & Francis, 2022. (Impact Factor: 1.9)

Conference Proceedings

[1] H. Modha, **J. Soni**, D. Patel, and J. Patel. *Efficient Solution of Static Economic Load Dispatch Using Sine Cosine Algorithm: A Comparative Analysis with Various Test Systems.* In **2025 International Conference on Computing, Intelligence, and Application (CIACON)**, Durgapur, India, pp. 1–6. IEEE, 2025. doi: 10.1109/CIACON65473.2025.11189466.

[2] Deep Patel, **Jatin Soni**, and Hardik Modha. *Artificial ecosystem-based optimization for solving the multi-objective economic emission load dispatch problem with wind-solar-thermal integration and uncertainty handling.* In **2025 IEEE 14th International Conference on Communication Systems and Network Technologies (CSNT)**, pp. 1296–1300. IEEE, 2025.

[3] **Jatin Soni** and Kuntal Bhattacharjee. *Sooty tern optimization algorithm for economic emission dispatch problem integration with wind energy.* In **Soft Computing Applications in Modern Power and Energy Systems: Select Proceedings of EPREC 2022**, pp. 175–187. Springer, 2023.

[4] **Jatin Soni**, Deep V. Patel, Rajendra V. Patel, and Hardik P. Modha. *A strategic community control-based power flow between grid-integrated PV houses.* In **Electronic Systems and Intelligent Computing: Proceedings of ESIC 2020**, pp. 1061–1071. Springer, 2020.

[5] **Jatin Soni** and Mahesh H. Pandya. *Power quality enhancement for PV rooftop and BESS in islanded mode.* In **2018 4th International Conference on Electrical Energy Systems (ICEES)**, pp. 242–247. IEEE, 2018.

Book Chapters

[1] Jatin Soni and Kuntal Bhattacharjee. *Effective multi-objective dynamic economic emission dispatch optimization with electric vehicles using hybrid oppositional-based learning sine cosine algorithm.* In **Role of Nature-Inspired Algorithms in Real-life Problems**, pp. 23–45. Springer, 2025.

[2] Jatin Soni and Kuntal Bhattacharjee. *Optimizing the integration of renewable energy source and plug-in electric vehicles for economic emission load dispatch through soft computing techniques.* In **Artificial Intelligence-Empowered Modern Electric Vehicles in Smart Grid Systems**, pp. 177–206. Elsevier, 2024.

[3] Jatin Soni and Kuntal Bhattacharjee. *Optimization of MPPT controller for standalone photovoltaic systems.* In **Perspectives on Social Welfare Applications' Optimization and Enhanced Computer Applications**, pp. 231–263. IGI Global, 2023.

Academic Achievements & Recognitions

- Editorial Board Member — **Scientific Reports, Renewable Energy** — SCIE Journal.
- Qualified **GATE (Electrical Engineering)** — AIR 11872 (2016), AIR 8742 (2018).
- Reviewer for journals: *Soft Computing, Environment Development and Sustainability, Engineering Optimization, Electrical Engineering, IJ Ambient Energy, IJSIR.*
- Delivered **Keynote Lecture** on "Hands-on Training on Electrical Wiring and Estimation," BOSCH Artisan Training Center, Ganpat University (2021).

Workshops Organized

- Co-coordinator, AICTE Sponsored ATAL Faculty Development Program (FDP) on "*Design, Development and Optimization of Electric Vehicle for a Green Future*," organized by the School of Electrical Engineering, Shri Mata Vaishno Devi University (SMVDU) during 6^{th}–11^{th} October 2025.
- Coordinator, "Electrical Wiring and Protection," BOSCH Artisan Training Center, Ganpat University (2021).
- Coordinator, "Circuit Building – Vidhyut 2020," Institute of Technology, Ganpat University (2020).