Dr. Rajeshkumar K. Ahir, Ph.D.

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GoogleScholar Singapore

Core Areas of Specialization: Machine Learning, Data Science, Artificial Intelligence, Statistical Modelling

Current Research Interests: Smart Grid, eXplainable AI (XAI) for Decision-Making, Smart Cities (Digital Twin), Sustainable Electric Vehicle (EV) Integration, Electricity Flexibility, Energy Data Analytics

Employment History

03/2025 – Till date — **Postdcotoral Research Fellow** Energy Research Insitute @ NTU (ERI@N), Nanyang Technological University (NTU), Singapore.
Supervisor: Assoc. Prof. Arvind Easwaran, College of Computing and Data Science, NTU

03/2024 – Till Date* — **AI Scientist/Researcher** DesCartes, CNRS@CREATE Ltd., Create Tower@NUS, Singapore. *: NTU is collaborating with CNRS@CREATE.
Supervisors: 1. Prof. Benoit Delinchant, Full Professor, University Grenoble Alpes (UGA), France, 2. Assoc. Prof. Arvind Easwaran, College of Computing and Data Science, NTU

11/2023 – 02/2024 — **Assistant Professor (Contractual)** Computer Science & Engineering Department, Indian Institute of Information Technology (IIIT) Surat, Gujarat, India.

08/2012 – 06/2018 — **Assistant Professor** Computer Engineering Department, G. H. Patel College of Engineering & Technology, Vallabh Vidyanagar, Gujarat, India.

Research Publications

Journal Articles (SCIE)

1. **Ahir, Rajesh K.**, B. Chakraborty, and P. Mitra, "Informed change-point detection approach for solar prosumer detection and statistical verification in smart grid," ***IEEE Transactions on Smart Grid***, pp. 1–1, 2024, **(IF: 9.4)**. DOI: 10.1109/TSG.2023.3271219.

2. **Ahir, Rajesh K.**, B. Delinchant, and A. Easwaran, "Time-series clustering: A benchmark study on energy data with insights into demand response," ***Engineering Applications of Artificial Intelligence*** *(Accepted - In Press)* ***(IF: 8.0)***,

3. **Ahir, Rajesh K.**, V. Biyawala, and S. Sikotra, "A two-phase data-driven approach for detection of solar pv and ev infrastructure in smart grid," ***Applied Energy (Elsevier)***, vol. 391, p. 125 912, 2025, ISSN: 0306-2619 **(IF: 11.0)**. DOI: https://doi.org/10.1016/j.apenergy.2025.125912.

4. **Ahir, Rajesh K.** and B. Chakraborty, "A data-driven analytic approach for investigation of electricity demand variability for energy conservation programs," ***Energy***, vol. 282, p. 128 939, 2023, ISSN: 0360-5442 **(IF: 9.4)**. DOI: https://doi.org/10.1016/j.energy.2023.128939.

5. **Ahir, Rajesh K.** and B. Chakraborty, "A novel cluster-specific analysis framework for demand-side management and net metering using smart meter data," ***Sustainable Energy, Grids and Networks***, vol. 31, p. 100 771, 2022, ISSN: 2352-4677 **(IF: 5.6)**. DOI: https://doi.org/10.1016/j.segan.2022.100771.

6. **Ahir, Rajesh K.** and B. Chakraborty, "Pattern-based and context-aware electricity theft detection in smart grid," ***Sustainable Energy, Grids and Networks***, vol. 32, p. 100 833, 2022, ISSN: 2352-4677 **(IF: 5.6)**. DOI: https://doi.org/10.1016/j.segan.2022.100833.

7. **Ahir, Rajesh K.** and B. Chakraborty, "A meta-analytic approach for determining the success factors for energy conservation," ***Energy***, vol. 230, p. 120 821, 2021, ISSN: 0360-5442 **(IF: 9.4)**. DOI: https://doi.org/10.1016/j.energy.2021.120821.

Conference Proceedings

1. M. Yuhas, **Ahir, Rajesh K.**, L. Vixel, M. Dzaki, A. Eswaran, and S. Supangkat, "Managing charging induced grid stress and battery degradation in electric taxi fleets," in ***2025 IEEE PES Innovative Smart Grid Technologies - Asia***, Guangzhou, China, 2025 (Accepted).
2. S. Mitra, **Ahir, Rajesh K.**, and B. Chakraborty, "Data-driven analytics for power theft detection in smart grid: An unsupervised deep-learning approach," in ***16th International Conference on Sustainable Energy & Environmental Protection (SEEP)***, University of Natural Resources and Life Science, Vienna, 2024.
3. **Ahir, Rajesh K.** and B. Chakraborty, "Understanding the electricity demand variability for designing demand response and energy efficiency strategies using smart meter data," in ***14th International Conference on Sustainable Energy & Environmental Protection (SEEP)***, United Kingdom (UK), London, 2022.

Education Qualifications

07/2018 – 10/2023 — **Ph.D., Indian Institute of Technology (IIT) Kharagpur, West Bengal, India** in Energy (Smart Grid) Data Analytics.
Thesis title: *Smart Meter Data Analytics: Aligning Data and Intelligence for Sustainable Energy Management.*

07/2010 – 06/2012 — **M.E., Gujarat Technological University (GTU), Ahmadabad, Gujarat, India** in Computer Engineering.

07/2006 – 06/2010 — **B.E., Veer Narmad South Gujarat University (VNSGU), Surat, Gujarat, India** in Computer Engineering.

Achievement & Awards

2025
- Awarded a **Future Digileader 2025 Badge** and **Travel and accommodation grant** to visit Future Digileader 2025 conference in Stockholm, Sweden. The visit is during 10th November 2025 to 13th November 2025.
- Invited as **Visiting Researcher** G2E Lab, Grenoble University Alps (UGA), Grenoble, France during 16th June 2025 to 4th July 2025.

2024
- Elevated as **Senior Member, IEEE,** Membership number: #98588703, since July 2024.

Professional Service: Reviewership

IEEE
- "IEEE Transactions on Industrial Informatics (**7**)", "IEEE Transactions on Smart Grid (**4**)"

Elsevier
- "Applied Energy (**6**)", "Sustainable Cities & Society (**3**)", "Renewable Sustainable Energy Reviews (**1**)", "Sustainable energy, grids and networks" (**2**)

Professional Membership

IEEE
- Senior Member, IEEE (No. 98588703), IEEE Power & Energy Society (PES), IEEE Smart Grid Community, IEEE Young Professionals

Declaration: I hereby declare that all the details furnished above are true to the best of my knowledge and belief.

(Dr. Rajesh K. Ahir)