Dr. Bhamidipati Venkata **Surya Vardhan**

PhD | Power System Optimization and prediction of its stochasticity (R&D)

About me

My research focuses on addressing grid integration challenges and optimizing distribution systems through advanced power scheduling, feeder analysis, and protection strategies in resilient grids. I specialize in applying machine learning and deep learning techniques to power systems and renewable energy, with over 20 authored and co-authored publications and extensive experience reviewing for top publishers and IEEE conferences. Alongside developing algorithms and operations research methods, I have practical expertise in power system modeling for production cost, resource adequacy, and integrating distributed energy resources such as agricultural and rooftop loads. Additionally, I have modeled energy systems using PLEXOS across diverse regions—including the Philippines, Australia's NEM, India, and EMEA—conducting day-ahead market simulations, price forecasting, and generation backcasting across multiple technologies, which has enriched my understanding of market dynamics, system reliability, and the strategic role of technology in driving sustainable, cost-effective energy transitions

Contact

Born on 06/1/1993, Age 32

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Pune, India

suryavardhan

Suryavardhan-googlescholar

Website

Languages

Hindi - Professional Language

English - Professional Language

Telugu - Mother tongue

EDUCATION

2019-2023 — **Ph.D** — VNIT, Nagpur, India
Defense: *9th March 2024.*

2016-2019 — **M.Tech** — VNIT, Nagpur ,India
Degree: *CGPA-7.0*

2010-2014 — **B.E.** — BE, OPJIT Raigarh, India
Degree: *CGPA-7.92*

VNIT (Visvesvaraya National Institute of Technology) also called as NIT Nagpur, is one of the 31 NIT's funded by Indian government and is recognized as Institute of national importance by Government of India .

RESEARCH EXPERIENCE

2019-2023 — **Ph.D, full time under Ministry of education fellowship** — Nagpur, India

Visvesvaraya National Institute Of Technology

Title: Energy Transition strategies using Artificial Intelligence and Machine Learning for optimal operation of Grid Integrated Renewable Sources

Description: My work centers on modern power system management—covering load flow analysis, grid operations, power scheduling, and reverse power flow in 11 kV and 33 kV lines. I've analyzed radial and non-radial systems, integrated renewables, and estimated storage needs. Skilled in power system optimization, renewable modeling, and energy trading, I use stochastic methods like regression and time series in MATLAB, Python, and GAMS. A key project studied protection setting changes from grid-connected PV at Katol Power Plant (MSETCL). My research is published in reputed journals and conferences..

PROFESSIONAL EXPERIENCE

Jan25-Now — **Energy Market Analyst** — Pune, India

Energy Exemplar

Job Responsibilities: I have extensive experience modeling energy systems with PLEXOS across regions like the Philippines, NEM (Australia), India, and EMEA. My work includes day-ahead market simulations, price forecasting, and generation backcasting, covering coal, hydro, solar, wind, and storage technologies. This has enhanced my understanding of market dynamics, system reliability, and technology's role in cost-effective, sustainable energy transitions.

Aug23-Dec24 — **Research Analyst** — New Delhi, India

Council on Energy, Environment and water (CEEW)

Job Responsibilities: I have extensive experience bridging energy systems and policy, combining technical modeling with regulatory insights. This includes production cost modeling using GridPath aligned with national policies, designing offshore wind profiles for Tamil Nadu with SAM, and addressing grid integration challenges for PM-KUSUM solar plants on 11 kV and 33 kV feeders. I've also analyzed key Indian power sector policies like market coupling, MYT tariffs, and resource adequacy frameworks.

Academic recognition

- MHRD (Ministry of Human Resource and Development) Govt. of India Scholarship (2016- 2019)
- Ministry of Education Govt. of India Fellowship (2019-2023)
- International Grant for Young Scientists of India Issued by Science and Engineering Research Board (Statutory Body Established Through an Act of Parliament : SERB Act 2008) Department of Science and Technology, Government of India. Oct 2022
- Elected as Life associate Member of SEEM (Society of Energy Engineers and Managers
- Reviewer of reputed journals and conferences like elsevier , IEEE , NPSC etc.
- Given talk in IEEE Green energy conference.
- Conference chair in 7th International Conference on Recent Trends in Image Processing Pattern Recognition (RTIP2R).
- Qualified Gate 2016,2017 and 2018
- Secured 93.6 percentile in AICTE CMAT
- AMCAT Scores
  1. Quantutative Aptitude - 98.7 Percentile
  2. Electrical Engineering - 98.8 Percentile
  3. Electronics Engineering - 87.9 Percentile
  4. Logical Ability - 82.7 Percentile
  5. English - 80.2 Percentile

Soft Skills and Strengths

Creativity | Curiosity | Flexibility | Patience | Self Confidence | Ability to Plan and Organize | Autonomy | Adaptability | Eye for Details | Problem Solving | Team Working | Love Learning New Things | Leadership | Good Communication | Managing Information | Diplomacy | Good Listener | Pragmatic

Other Interests

- Classical Music
- cricket
- Piano
- Books
- Badminton
- Lawn Tennis

References

1. Dr. Mohan Khedkar, Professor, EED, VNIT, Nagpur.
   Email:mohankhedkar@eee.vnit.ac.in
2. Dr. Nita Patne, Professor, EED, VNIT, Nagpur.
   Email: nitapatne71@gmail.com
3. Dr. Siba Kumar Patro, Assistant Professor, EED, IIT, Roorkee.
   Email:sibakumarpatro@gmail.com
4. Dr. K. Raghavendra Naik, Assistant Professor, EED, NIT, Jamshedpur.
   Email:227raghavendra@gmail.com

INFORMATION TECHNOLOGY SKILLS

Modeling and Simulation	**MATLAB** : *Specialized.* **Plexos** : *Specialized.* **PYTHON** : *Specialized.* **C++,C,C** : *Specialized.* **SIMULINK** : *Specialized.* **SAM (System advisory Model)** : *Specialized.* **MS OFFICE** : *Specialized.* **Homer pro** : *Intermediate.*
Machine Learning	**Matlab**: *Specialised.* **Python**: *Specialised.*

Research Index (Google Scholar (As of 9th November 2025)

- H Index - 10
- i-10 Index - 10
- Suryavardhan-googlescholar

MAJOR PUBLICATIONS

Total Publications-21:

Journal Article 2022
Effective energy management and cost effective day ahead scheduling for distribution system with dynamic market participants, „ *in Sustainable Energy, Grids and Networks, Elsevier Journal.*, https://doi.org/10.1016/j.segan.2022.100706

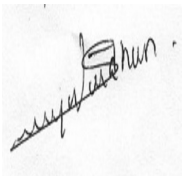
Journal Article 2024
Impact of integrated classifier — Regression mapped short term load forecasting on power system management in a grid connected multi energy systems, „ *in Electric Power Systems Research, Elsevier Journal.*, https://doi.org/10.1016/j.epsr.2024.110222

Conference Article 2022
Hyper-Parameter Tuned Short Term Load Forecasting Using Stochastic Classifier-Regression Mapping For Power System Operator, „ *in 2022 IEEE PES 14th Asia-Pacific Power and Energy Engineering Conference (APPEEC), Melbourne, Australia.*, 10.1109/APPEEC53445.2022.10072174

Remaining publications can be accessed from my Google scholar or Linked-in id given in my contact section:

PERSONAL DECLARATION

I hereby declare that the information furnished above is true to the best of my knowledge and belief. I am looking forward to receiving your early reply.
Thanking you in anticipation.



Date : 5/ 6/ 2025
Place : Pune

(B V Surya Vardhan)