# Ajay Shankar

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## Contact

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## DoB

26th December 1990

## Languages

English, Hindi

## Achievements

- GATE | Electronics Engineering | AIR-494 | 2012/13/14

## Technical Skills

- **Modeling**
  PyPSA | MATLAB
- **Programming**
  Python | MATLAB
- **Graphic programming**
  Simulink, LabVIEW
- **Documentation**
  LaTeX | Beamer | MS Word
- **Data analysis & plotting**
  Matlab | MS Excel | Origin
- **Drawing**
  Inkscape | MS Visio | Smart Draw

## Interests

- Energy analytics & management
- Hybrid energy modelling & optimization with BESS
- Energy access
- Modern power systems optimization

## About

Sustainable energy professional with **7+ years** of experience in an interdisciplinary background and a demonstrated history of working on **hybrid energy modeling, modern power systems modeling & optimization**, techno-economic analysis of RES, energy access, and energy management. Well-versed with power systems modeling in **PyPSA and MATLAB**, load flow analysis, developing a sustainable and reliable energy solution with optimum cost, writing a proposal/scientific report, and delivering a persuasive presentation. Presently, working as manager- energy modeling at the energy and power vertical of Vasudha Foundation, New Delhi.

## Experience

Nov 2021– **Manager | Energy Modeling** — **New Delhi, India**
*Energy and Power Verticals, Vasudha Foundation*
**Job Responsibilities:** Modern power systems modeling & optimization, load flow analysis, energy analytic, energy policies, managing team, technical & scientific writing, etc.

Jul 2018 **Senior Research Fellow | Sustainable Energy Systems Lab (Till Oct 2021)** — **Chennai, India**
*Energy and Power Group, IIITD&M Kancheepuram*
**Job Responsibilities:** Energy modeling & optimization, energy analytic, development of sustainable energy solutions for high-rise buildings, research, learning & training, technical & scientific writing, etc.

Jul 2016 **Assistant Professor (Till Jul 2018)** — **Jaipur, India**
*Dept of Electrical Engineering, Manipal University Jaipur*

Sept 2014 **Assistant Professor (Till Jun 2016)** — **Lucknow, India**
*Dept of Electrical Engineering, BBD University, Lucknow*
**Job Responsibilities:** Delivering lectures and labs, curriculum development, T&P coordinator, guiding projects, etc.

## Education

2018–2022 **Ph.D. | Sustainable Energy Systems | Thesis submitted (Jan 2022)**
Dept. of Electronics & Communication Engineering
Indian Institute of Information Technology, Design & Manufacturing, Kancheepuram, Chennai, India

2012–2014 **M.Tech. | Electrical Engineering (Control & Automation) | CGPA: 7.77**
Dept. of Electrical Engineering
National Institute of Technology Rourkela, India

2008–2012 **B.Tech. | Electronics & Instrumentation Engineering | CGPA: 8.48**
Shobhit University, Meerut, India

## Academic Projects

2018-2022 **Ph.D.** — **IIITD&M Kancheepuram, Chennai, India**
Development of sustainable energy solutions for smart buildings

2013-14 **M. Tech.** — **NIT Rourkela, India**
Wide-area controller design for two area power systems using robust control

2011-12 **B. Tech.** — **Shobhit University, Meerut, India**
To Design a PID controller for a Generalized System Using LabVIEW

## Competencies

- Energy systems modeling, Modern power systems optimization and load flow analysis

- Sustainable energy modeling of RES (PV-BIPV-Wind) with battery energy storage system
- Evaluation of performance parameters of PV modules
- Techno-economic analysis of RES on indexes of energy trilemma
- Energy reliability & affordability based optimal sizing of RES with BESS (HOMER Pro | MOPSO | MOGWO)
- Technical & scientific writing
- Verbal  non-verbal communication
- Transferable skills

## Awards

- Doctoral fellowship | MHRD, Govt. of India | 2018-2023.
- PG scholarship | MHRD, Govt. of India | 2012-2014.

## Publications

1. **Ajay Shankar**, Vijayakumar K, and Chitti Babu B, "Optimal Sizing of PV-BIPV-Battery System for a Resilient Microgrid: An Energy Trilemma Approach", IEEE Transactions on Smart Grid, Jan 2022 (IF: 8.96, Under review: TSG-01778-2021).
2. **Ajay Shankar**, Vijayakumar K, Chitti Babu B, and Rajvir Kaur, "Energy Trilemma Index Based Multi-Objective Optimal Sizing of PV-Battery System for a Building in Tropical Savanna Climate", IEEE System Journal, Dec 2021 (IF:3.93, Under minor revision: ISJ-RE-21-12216R1).
3. **Ajay Shankar**, Vijayakumar K, and Chitti Babu B, "Energy Saving Potential Through Artificial Lighting System in PV Integrated Smart Buildings", Journal of Building Engineering, Elsevier, Vol. 43, 103080, Aug 2021 (IF:5.32).
4. **Ajay Shankar**, Vijayakumar K, and Chitti Babu B, "Techno-economic and Energy Assessment of BIPV Module as an Envelope of the Building", International Transactions on Electrical Energy Systems, Wiley, Sep 2021 (IF:2.86).
5. **Ajay Shankar**, Vijayakumar K, and Chitti Babu B, "Smart LED Lighting System With Occupants' Preference and Daylight Harvesting in Office Buildings", Energy Sources: Part A, Taylor & Francis, pp. 1-21, Dec 2020 (IF:3.45).
6. **Ajay Shankar**, Vijayakumar K, and Chitti Babu B, Ali Durusu, "Smart LED Lighting System for Energy Efficient Industrial and Commercial LVDC Nanogrid Powered Buildings with BIPV", IEEE International Conference on Smart Energy Systems and Technologies (SEST), Istanbul, Turkey, 2020.
7. M S Babu, **Ajay Shankar**, and K Seethalekshmi, "Power System Stability: Mode Identification in the Power System Oscillations Using Wide Area Measurement Systems", Power Research (CPRI), vol. 11, no. 2, pp. 247-258, 2015.

## Other Information

- Reviewer of IEEE Access, IET RPG, Energy Sources, Part A: Taylor & Francis, and other international conferences.
- Actively involved in organizing international conferences (ICESIP 2019, CICT 2020) and 5 ATAL workshops sponsored by AICTE, GoI at IIITD&M Kancheepuram, Chennai.

## References

References are available on reasonable demand.