

Dr. Vishal Kumar Gaur

Assistant Professor
Department of Electrical Engineering
Motilal Nehru National Institute of Technology Allahabad

M. No.: (+91) 7253 046 186
Email: vkgaur@mnnit.ac.in
vishalgaur_mait@yahoo.in
Place: Prayagraj, Uttar Pradesh

SUMMARY/OBJECTIVE

My primary goal is to leverage my technical expertise to generate practical solutions for real-world challenges within my domain of expertise and make a direct, positive impact on society.

RESEARCH INTEREST

- Numerical Relaying Algorithms
- Wide Area Monitoring, Protection and Control
- Application of Synchrophasor Technology
- Microgrid/Smart Grid Protection
- Controlled Switching of Switchgears
- Switching Transients

WORK EXPERIENCE

Assistant Professor

MNNIT Allahabad | Prayagraj, Uttar Pradesh | August 2023 – till date

- Teaching & Research

Assistant Professor

Thapar Institute of Engineering & Technology | Patiala, Punjab | July 2022 – August 2023

- Teaching & Research

Research Associate-III

IIT Kanpur | Uttar Pradesh, India | April 2021 – June 2022

- To carryout research to complete the project objectives
- Meetings with the Industry collaborators

Lecturer

Pandit Deendayal Petroleum University | Gandhinagar, Gujarat | July 2014 – June 2015

- Teaching & Research

EDUCATION

Degree	Institute / Board	Year of Passing	Discipline
B. Tech.	Maharaja Agrasen Institute of Technology, Delhi, India	2011	Electrical & Electronics
M. Tech.	Sardar Vallabhbhai National Institute of Technology Surat, Gujarat, India	2014	Power Systems
Ph.D.	Indian Institute of Technology Roorkee, Uttarakhand, India	2021	Electrical Engg.

THESIS WORK

PhD Thesis

IIT Roorkee | Roorkee, Uttarakhand | December 2015 – March 2021

Title: Fault detection and location algorithms for three-terminal transmission lines

Supervisor: Prof. Bhavesh R. Bhalja, Department of Electrical Engineering, IIT Roorkee

Brief Summary: In my doctoral study, I developed protection algorithms to detect and locate faults in tapped or three-terminal transmission lines. The conventional relaying scheme experience the underreach effect due to infeed current from tapped line and fault resistance. This under-reach effect is more prominent in case of double-circuit three-terminal line. In this thesis, I have explored both phasor-based and traveling wave-based approaches to solve the aforementioned issues and developed more accurate and sensitive relaying algorithms.

M.Tech. Thesis

SVNIT Surat | Surat, Gujarat | August 2012 – July 2014

Title: Study and simulations of transient recovery voltage envelopes of high voltage circuit breaker according to IEC definitions

Supervisors: Dr. Hitesh R. Jariwala, Department of Electrical Engineering, Sardar Vallabhbhai National Institute of Technology Surat, Gujarat, and Mr. Krunal Kansara, R&D, Power Product High Voltage-Technology Centre, ABB India, Vadodara, Gujarat

Brief Summary: For a circuit breaker, we are interested in knowing its switching ability in normal operation and during fault occurrence. However, direct testing is not feasible because it requires high power for testing circuit breakers and a high installation cost. Therefore, full-scale switching tests at the development stage are impossible for economic reasons. Also, it gives limited flexibility in setting the desired value for a particular component at any time we want. For an alternative equivalent method, synthetic tests could be applied for circuit breaker testing. This thesis analyzes the limitation of TRV parameters or envelope adjustment as per IEC 62271-100 for different synthetic circuits due to complex calculations. Two algorithms have been developed to provide the simple analytical solution for tuning of synthetic test circuit with the desired characteristic of output TRV and short circuit current.

PUBLICATIONS IN PEER-REVIEWED INTERNATIONAL JOURNALS

1. **Vishal Kumar Gaur**, Saikat Chakrabarti, Ankush Sharma, “Improving faulty phase selection in PV integrated system with compensation angle approach,” *Electric Power Systems Research*, vol. 226, 109913, 2024.
2. **Vishal Kumar Gaur**, Bhavesh R. Bhalja, and A. Saber “New fault location method for three-terminal transmission line using unsynchronized current measurements,” *International Journal of Electrical Power & Energy Systems (EPES)*, vol. 135, pp. 1-10, 2022.
3. **Vishal Kumar Gaur**, Bhavesh R. Bhalja, and Mladen Kezunovic “Novel fault distance estimation method for three-terminal transmission line,” *IEEE Transactions on Power Delivery*, vol. 36, no. 1, pp. 406-417, 2021.
4. **Vishal Kumar Gaur**, Bhavesh R. Bhalja, “New fault detection and localisation technique for double-circuit three-terminal transmission line,” *IET Generation Transmission & Distribution*, vol. 12, no. 8, pp. 1687-1696, 2018.
5. **Vishal Kumar Gaur**, Bhavesh R. Bhalja, “A new faulty section identification and fault localization technique for three-terminal transmission line,” *International Journal of Electrical Power & Energy Systems (EPES)*, vol. 93, pp. 216-227, 2017.

PUBLICATIONS IN INTERNATIONAL/RENOINED CONFERENCES

6. **Vishal Kumar Gaur** and Bhavesh R. Bhalja, “Wavelet transform modulus maxima- based fault location method for three-terminal transmission line,” *International Conference on Power Systems (ICPS)*, 20-22 December 2019, Jaipur, India.
7. **Vishal Kumar Gaur** and Bhavesh R. Bhalja, “Synchrophasor based fault distance estimation method for tapped transmission line,” *IEEE Conference on Smart Grid Synchronized Measurements and Analytics (SGSMA)*, 25-27 May 2019, TX, USA, pp. 1-5.
8. **Vishal Kumar Gaur** and Bhavesh R. Bhalja, “A new digital distance relaying scheme for three terminal transmission line,” *IEEE Power & Energy Society General Meeting (PESGM)*, 5-9 August 2018, Portland, USA, pp. 1-5.
9. **Vishal Kumar Gaur** and H. R. Jariwala, “Approach to solve synthetic test circuit for testing of high voltage circuit breaker,” *IEEE International Conference on Environment and Electrical Engineering (EEEIC)*, Rome, 10-13 June 2015, Italy, pp. 1187-1192.
10. **Vishal Kumar Gaur** and H. R. Jariwala, “Design and modeling of synthetic test circuit to generate four parameter TRV envelope,” *IEEE Power India International Conference (PIICON)*, 5-7 December 2014, Delhi, India.

ARTICLE IN MAGAZINE

11. **Vishal Kumar Gaur** and Bhavesh R. Bhalja, “Energy conservation,” *Electrical India Magazine*, Sept., 2015.

PUBLISHED BOOK/CHAPTER

12. **Vishal Kumar Gaur** and S. Paul, "Communication and Measurement Technologies for Smart Grid," in *Big Data Analytics Framework for Smart Grids*, 1st ed. CRC Press, 2023, pp. 30. DOI: 10.1201/9781032665399

LECTURE/TALKS DELIVERED

- Lecture on “Transmission line protection using synchrophasor technology” in training program on *Smart Grid Technologies at IIT Kanpur*, September 15-19, 2021.

CONFERENCES/ TRAINING PROGRAMS ATTENDED

Sr.no	Seminar/conference/Workshop	Date	Location	Mode
1	IEEE Power India International Conference (PIICON)	December 05, 2014 to December 07, 2014	Delhi, India	Offline
2	Southeast Asia International Joint-Research and Training Program on Low Carbon Green Energy and Environmental Sustainability	August 26, 2017 to September 03, 2017	Taiwan	Offline
3	IEEE PES General Meeting	August 05, 2018 to August 09, 2018	Portland, USA	Offline
4	IEEE Conference on Smart Grid Synchronized Measurements and Analytics	May 20, 2019 to May 23, 2019	Texas, USA	Offline
5	IEEE International Conference on Power Systems (ICPS)	December 20, 2019 to December 23, 2019	Jaipur, India	Offline
6.	Coordinated Control and Protection of Distributed Networks with High Integration of Renewable Sources, sponsored by SPARC	February 26, 2024 to March 01, 2024	IIT Roorkee	Offline

CHAIR IN CONFERENCES

- Session Chair, EPREC-2023, NIT Jamshedpur
- Session Chair, International Conference on Advancement in Science, Technology & Management (ICASTM - 2023), S. B. Jain Institute of Technology, Management and Research, Nagpur

OTHER SIGNIFICANT ACHIEVEMENTS

- Academic Expert for the Board of Studies (Diploma Course) at UoER Roorkee in 2023
- Academic Expert for the Board of Studies (Undergraduate Course) at UoER Roorkee in 2023
- Academic Expert for the Board of Studies (Postgraduate Course) at UoER Roorkee in 2023
- Technical Program Committee (TPC) member at “Electric Power and Renewable Energy Conference 2023” (EPREC-2023) at NIT Jamshedpur.
- Technical Program Committee (TPC) member at “Electric Power and Renewable Energy Conference 2021” (EPREC-2021) at NIT Jamshedpur.
- Teaching Assistant for NPTEL online certification course of “Power System Protection and Switchgear” during July-December 2020.

REVIEWER FOR TRANSACTIONS / JOURNAL

IEEE Transactions on Smart Grid	IET Science Measurement & Technology
IEEE Transactions on Power Delivery	IEEE Canadian Journal of Electrical and Computer Engineering
IEEE Systems Journal	International Journal of Emerging Electric Power Systems
International Journal of Electrical Power & Energy System, Elsevier	IEEE Access
IET Generation, Transmission & Distribution	International Transactions on Electrical Energy Systems, Wiley
IET Renewable Power Generation	

RESPONSIBILITIES

- Organising Secretary, 08th Students’ Conference on Engineering & System (SCES) 2024, International IEEE
- Warden on special duty, MNNIT Allahabad since December 08, 2023
- Faculty Co-ordinator, Gymkhana (Boys), MNNIT Allahabad since September 2023
- Member, Institute Innovation Council, MNNIT Allahabad since September 2023
- Faculty in-charge, M.Tech. Thesis, EED MNNIT Allahabad, since August 2023
- Dy. Co-ordinator, Departmental committee responsible for NBA (UG) accreditation, EED MNNIT Allahabad, since August 2023.
- UG Project Co-Coordinator, EED, TIET, from August 2022 to July 2023.
- Student Counselling Team Member, EED, TIET, from August 2022 to July 2023.
- Elected and served as Bhawan Secretary (President of PG Hostel having strength of 500 residents) at IIT Roorkee for two consecutive academic years 2018-19 and 2019-20.
- Student Member, Institute Bhawan & Mess Monitoring Committee of IIT Roorkee in 2018-19.

DECLARATION

I hereby declare that the facts given above are genuine to the best of my knowledge and belief.