



Bhalja Het Sanjaykumar
 PhD (II Year)
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Area of Interest

Power Transformer Protection, Converter Transformer Protections, Solid-State Transformer Protection, Power System Protection, Renewable Energy Generation, Multi-level Inverters, Microgrid Protections, Electric Vehicle (EV) charging technologies

Education

Year	Degree/Examination	Institution/Board	CGPA/Percentage
2020	Ph.D. 2nd Year	Indian Institute of Technology, Roorkee	9.667
2019	Postgraduate (PG)	Pandit Deendayal Energy University	9.960
2017	Graduate (UG)	Pandit Deendayal Energy University	8.330
2013	Intermediate (Class XII)	Gujarat Secondary and Higher Secondary Education Board	85.07 %
2011	Matriculate (Class X)	Gujarat Secondary and Higher Secondary Education Board	93.80 %

Experience

Junior Research Fellow | Indian Institute of Technology Roorkee (CPRI Project) June 20, 2019 - December 25, 2019

- Involved in the project entitled "Design, Development and Validation of a New Adaptive Digital Relaying Scheme for Power Transformer" sponsored by Central Power Research Institute (CPRI), Bangalore.
- Involved in the development of the adaptive control switching based protection scheme for the power transformer.

Internships

Research Intern | Indian Institute of Technology Roorkee June 05, 2018 - July 20, 2018

- Work on the reliability assessment of the large scale solar PV plants
- Solar photovoltaic (SPV) systems are widely used as a renewable energy source to produce electricity to endusers. SPV system convert free and unlimited sunlight into electricity without carbon dioxide emission or any other air pollutants. Therefore, the assessment of the performance measures like reliability and quality of its components is vital concern.

Technical Intern | Schneider Electric Infrastructure Limited June 08, 2016 - July 18, 2016

- Technical intern at Transformer testing department
- In transformer testing department, I have worked on the test that are being carried out on power as well as on distribution transformer.
- This test includes all types of routine test, type test and special tests.
- I have also learn how to operate the test equipments for testing.

Civil and Social Service Intern | Bal Gokulam June 01, 2014 - July 25, 2014

- I have worked as social and civil service intern.

Projects

Development of The Digital Relaying Scheme for Transformers Used in Smart Grid | Indian Institute of Technology Roorkee December 2019 - Present

- As my Ph.D. Work

Design, Development and Validation of a New Adaptive Digital Relaying Scheme for Power Transformer | Indian Institute of Technology Roorkee June 20, 2019 - December 25, 2019

- As the most vital component of the electricity network there is need to develop reliable protection scheme for the same.
- In this project, I have worked on the identification of the problem that are being faced by the utility while using conventional differential protection and I have also worked on the development of the new adaptive protection scheme for the power transformer.

Integration of Solar, Battery with diesel generator using Multi-level Inverter | Pandit Deendayal Energy University June 2018 - June 2019

- I received the funding of 2.4 Lakhs from the office of research and sponsored project (ORSP), PDEU.
- In this project, I have developed the hardware based on multi-level inverter to integrate the solar PV, battery and diesel generator as a power solution for the remote and hilly area where construction of transmission line is not financially feasible.
- I have worked on D-space, Micro-Lab Box, MATLAB, PSIM, CCS in this project

Transient stability improvement of the Induction Generator for wind farm application | Pandit Deendayal Energy University January 2017 - June 2017

- In this project the methods to improve stability of the induction generator is analysed. The simulation was done on PSCAD/EMTDC environment.

- In this project by using TCR/TSC devices the improvement of the same on stability as well as power factor is observed. The MATLAB was used as simulation environment.

Awards / Scholarships / Academic Achievements

- Recived research funding of 2.4 Lakhs for my M.Tech. Project from ORSP, PDEU
- Gold Medal in M.Tech.
- Bronze Medal in B.Tech.

Skills

Computer languages	C, C++, Fortran
Software Packages	MATLAB, PSCAD, PSIM, MS Office, D-Space, Opal-RT, RSCAD, CMS356
Additional Courses	Distribution System Anslsysis and Operation (A+) HVDC Transmission Systemn (A) Power System Reliability (A+) Digital Protection of Power System (A+) Seminar (A)
Languages Known	English, Hindi, Gujarati

Positions of Responsibility & Extra Curriculars

Teaching Assistant | NPTEL - E-Learning Centre, Indian Institute of Technology Roorkee January 2022 - Present

- I am the TA associated with the course "Digital Protection of Power System" (noc22-ee46)
- This is under the Gov. of India initiative as "National Programme on Technology Enhanced Learning"

Junior Research Fellow | Indian Institute of Technology Roorkee June 20, 2019 - December 25, 2019

- JRF in the research project from CPRI, Bangalore

Teaching Assistant-PG | Pandit Deendayal Energy University June 20, 2017 - May 31, 2019

- Involment in the designing the experiment for the undergraduate students. Also over the period of 2 years, almost took 6 subject practical class.

Research Intern | Indian Institue of Technology Roorkee June 05, 2018 - July 20, 2018

- Research intern

Technical Intern | Schneider Electric Infrastructure Limited June 08, 2016 - July 18, 2016

- Transformer testing department

Social and Civil Intern | Bal Gokulam June 2014 - July 2014

- As a part of Civic and social internship during Graduation.
- I worked as Intern teacher in the Bal Gokulam NGO which is also a juvenile jail.

Research Publications

- Ashesh M Shah, Bhavesh R Bhalja, Rajesh M Patel, Het Bhalja, Pramod Agarwal, Yogesh M Makwana, Om P Malik, "Quartile Based Differential Protection of Power Transformer", in IEEE Transactions on Power Delivery, IEEE, 2020
- Het S. Bhalja; Bhavesh R. Bhalja; Pramod Agarwal, "Rate of Rise of Differential Current Based Protection of Power Transformer", in IEEE India Conference (INDICON), IEEE, 2019
- Het Bhalja; Amit Vilas Sant; Anilkumar Markana; Bhavesh R. Bhalja, "Microgrid with Five-Level Diode Clamped Inverter Based Hybrid Generation System", in International Conference on Electronics, Communication and Computing Technologies (ICECCT), IEEE, 2019

References

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Prof. Pramod Agarwal

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