

Rahul Ranjan Jha

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EDUCATION

- Ph.D. in
Power Engineering Aug 2016 – Current
 - Cumulative GPA: 3.7 / 4.0
 - Thesis: Optimization and Control of the Distribution system
 - Adviser: Dr. Anamika Dubey
- M.Tech in
Power and Control Jul 2013 – Jul 2015
 - Thesis: Development of Control Strategies for Power Management with Renewable Resources
 - Cumulative GPA: 8.8/10.0
 - Adviser: Prof. S.C.Srivastava
- B.Tech in
Electrical and Electronics Engineering Jul 2008 – May 2012
 - Cumulative GPA: 81.8/100.0

RESEARCH EXPERIENCE

Research Assistant,

- Washington State University Aug 2016 –Current
Project: Advance Distributed Management System
 - Supervisors: Prof. Anjan Bose and Dr Anamika Dubey
 - The project is in collaboration with Pacific Northwest National Laboratory. The focus of the project is to develop Volt-VAR optimization application on GridAPPS-D.
 - The three phase unbalanced power flow is proposed which is used for the optimization of the distribution system. The modelling of the capacitor banks, voltage regulators and load (linear CVR effect) in the distribution system. Conservation voltage reduction using capacitor banks, voltage regulators and smart inverter.
 - Reducing the voltage variability cause due to photovoltaic installation at a bus using smart inverter. The control signal are provided to smart inverter by interfacing of Matlab and OpenDSS.
 - Indian Institute of Technology, Kanpur Jul 2013 – Jul 2015
Thesis: Development of Control Strategies for Power Management with Renewable Resources
 - Adviser: Prof. S.C.Srivastava
 - Integration of Photovoltaic ,Wind Turbines and Battery Energy Storage System to the grid using PID, Fuzzy logic and ANFIS control.
 - Modeling a cluster of house with Photovoltaic and Battery Energy Storage System and management of power flow under various load condition.
 - Vikram Sarabhai Space Centre, Thiruvananthapuram Nov 2011 – Mar 2012
Thesis: Ball and Beam System Experiment and Simulation Using PID Controller
 - Adviser: Dr. Usha Nair and Arjun N.
 - Obtained the transfer function for the Ball and Beam System and designing PID control for the system. To introduce the non linearity, LuGre and Dhal frictional model are designed and compared with the simulated and experimental results.
- ### Course Projects,
- Indian Institute of Technology, Kanpur
 - HVDC Application for Enhancing Power System Stability
 - Studied about Voltage Source Converter HVDC which damp out the rotor angle oscillation of the generator. Simulation is done to verify the effect of VSC HVDC in stabilizing the rotor angle of the weak system.
 - Static ATC Determination Using Radial Basis Function Neural Network
 - Studied about the need of Available Transfer Capability (ATC) in the power market. The simulation is done to determine ATC using ANN on IEEE 14 bus system.
 - Dynamic Simulation and Stability Control of Distribution System with Distributed Generators
 - Modelling of the IEEE 13 node distribution system and diesel engine on Simulink. The oscillation in the system is reduced by using Thyristor Control Breaking Resistor and resistor in parallel with capacitor.

PUBLICATIONS

JOURNALS

- [1] Rahul R Jha and Anamika Dubey, "Coordinated Control for Voltage Regulation of Unbalanced Power Distribution System:Centralized and Local Control Methods," in IET Generation, Transmission Distribution (Submitted).
- [2] Rahul R Jha; Anamika Dubey and Anjan Bose, "Sequential Linear Programming for Volt-VAR Optimization to Coordinate Smart Inverters with Voltage Control Devices ," (in preparation).

- [3] Rahul R. Jha; Anamika Dubey; Chen-Ching Liu; Kevin P. Schneider, "Bi-level Volt-VAR Optimization to Coordinate Smart Inverters with Voltage Control Devices", in IEEE Transaction on Power System.
- [4] Rahul R Jha; S. C. Srivastava and M. Kumar, "Development of Control Schemes for a Cluster of PV-Integrated Houses in Islanded mode," in IET Renewable Power Generation, vol. 11, no. 7, pp. 903-911, 6 7 2017.

CONFERENCES

- [1] Rahul R Jha; Anamika Dubey, "Local Smart Inverter Control to Mitigate the Effects of Photovoltaic (PV) Generation Variability", in North American Power Symposium (NAPS) 2019.
- [2] Mohammad Ostadijafari; Rahul R Jha; Anamika Dubey, "Conservation Voltage Reduction by Coordinating Legacy Devices, Smart Inverters and Battery", in North American Power Symposium (NAPS) 2019.
- [3] Rahul R Jha; Anamika Dubey, "Exact Distribution Optimal Power Flow (D-OPF) Model using Convex Iteration Technique", in IEEE Power and Energy Society General Meeting (PESGM) 2019.
- [4] Rahul R Jha; S. C. Srivastava, "Fuzzy Logic and ANFIS Controller for Grid Integration of Solar Photovoltaic", IEEE International Conference on Power Systems, 2016.
- [5] Rahul R Jha; Gaurav Pandey, "Internal Model Bases Current Control for Grid Integrated Solar Photovoltaic", IEEE International Conference on Power Systems, 2017.

INTERNSHIP

Argonne National Laboratory, May 2019 – Aug 2019
Identification of active motor load parameters in the WECC system. Cost and efficiency assessment tool in AC and DC distribution grids

National Renewable Energy Laboratory, May 2018 – Aug 2018
The performance of the Xcel feeders are evaluated by installing ENGO devices at the secondary of the distribution transformer. The power flow analysis is performed by interfacing REopt and OpenDSS using python.

GE India Technology Centre Pvt. Ltd., May 2014 – Jul 2014
Worked on deriving the sensor less control techniques for Sine fed Switched Reluctance Motor. The simulation is performed on Matlab/Simulink to verify the sensor and sensor less control techniques.

AWARDS & SCHOLARSHIPS

- University Grants Commission, Scholarship
Awarded for the academic excellence during junior and senior year of undergraduate.
- POSOCO Power System Awards, 2016
Awarded for Masters research excellence in power system.

OTHER WORK EXPERIENCE

Teaching Assistance, Indian Institute of Technology, Kanpur

- Teaching Assistant for the EE 330 course (Power Systems) during August-November 2014.
- Teaching Assistant and Lab instructor for the ESO 203 course (Basics of Electrical Engineering) during December 2014-April 2015.
- Research Assistant, worked on developing DC microgrid on RTDS/RSCAD platform.

SKILLS

Computer Programming
MATLAB, Python, C

Power System Simulation
MATLAB, OpenDSS, PSCAD, RSCAD, PSS/E, PowerWorld

INDUSTRIAL TRAINING

- One month vocational training at Badarpur Thermal Power Station, NTPC, Badarpur, New Delhi.
- Three days Industrial Training at Transformers and Electrical Kerala Limited, Kochi, Kerala.
- One week Industrial Training at 220kv substation, Kalamassery, Kochi, Kerala.

PROFESSIONAL AFFILIATIONS

IEEE Power and Energy, Student Member