

Rahul Kumar Jha

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EDUCATION

Tribhuvan University, Pashchimanchal Campus, Pokhara, Nepal

Bachelor of Electrical Engineering, June 2023

Percentage: 68.46%, First Division, 3.14 GPA

HONORS AND AWARDS

- University Entrance Merit Scholarship
- Champions of “Expo and Poster Presentation” Competition, EMELA, 2023
- Secondary Level College Entrance scholarship for being Entrance Topper
- A+ Honour Award for receiving top grade in Grade-10

PRESENTATIONS

International Conference on Role of Energy for Sustainable Social Development,

Organized by IEEE PES Nepal Chapter, Kathmandu, 2023

PAPERS

Conference Proceedings

- “Electric Power Conversion using Matrix Converter”
Presented Paper titled "Electric Power Conversion using Matrix Converter" as an author at the prestigious International Conference on the Role of Energy for Sustainable Social Development, IEEE Pes Nepal Chapter.
- “Design and Simulation of Unified Power Flow Controller for improving Transient Stability”
International Conference on Technologies for Computer, Electrical, Electronics & Communication (ICT-CEEL 2023), Kathmandu, 2023

Journal Papers

- 1) “Power optimization techniques for geomatics sensor networks in smart cities (pg 15-21)”,
Geo World Volume-V
- 2) Jha, R. K. (2023). Strengthening Smart Grid Cybersecurity: An In-Depth Investigation into the Fusion of Machine Learning and Natural Language Processing. *Journal of Trends in Computer Science and Smart Technology*, 5(3), 284-301. doi:10.36548/jtcsst.2023.3.005
- 3) Jha, R. K. (2023). Cybersecurity and Confidentiality in Smart Grid for Enhancing Sustainability and Reliability. *Recent Research Reviews Journal*, 2(2), 215-241. doi:10.36548/rrrj.2023.2.001

- 4) Jha, R. K., Neupane, S. & Bhatt, R. R. (2023). A Comprehensive Approach to Securing Power Converters: Cyber-Physical Integration. *Recent Research Reviews Journal*, 2(2), 256-287. doi:10.36548/rrrj.2023.2.003
- 5) Jha, R. K. (2023). An In-Depth Evaluation of Hybrid Approaches in Soft Computing for the Identification of Social Engineering. *Journal of Soft Computing Paradigm*, 5(3), 232-248. doi:10.36548/jscp.2023.3.002
- 6) Jha, R. K. (2023). Enhancing Climate Adaptation Through Hybrid Energy Systems. *Journal of Electrical Engineering and Automation*, 5(3), 310-328. doi:10.36548/jeea.2023.3.002
- 7) Jha, R. K. & Neupane, S. (2023). Securing the Future of Mobility: Electric Vehicle Charging Infrastructure Protection. *Journal of Information Technology and Digital World*, 5(3), 291-309. doi:10.36548/jitdw.2023.3.005
- 8) Jha, R. K. (2023). Sustainable Energy Transition: Analyzing the Impact of Renewable Energy Sources on Global Power Generation. *Journal of Artificial Intelligence and Capsule Networks*, 5(3), 314-329. doi:10.36548/jaicn.2023.3.007
- 9) Jha, R. K. (2023). Quantum-Inspired Algorithms for Market Clearing in Smart Grids: A Comprehensive Review. *Recent Research Reviews Journal*, 2(2), 343-360. doi:10.36548/rrrj.2023.2.007
- 10) Dangi, R., Kandel, S., Sen, V., Parajuli, V. & Jha, R. K. (2023). Analysis and Detection of Power System Network Faults with Wavelet Transform. *Journal of Electronics and Informatics*, 5(3), 272-289. doi:10.36548/jei.2023.3.003
- 11) R. K. Jha, S. Neupane, B. K. Shah, U. Paudel, N. Thakur, R. P. Panday, "Electric Power Conversion using Matrix Converter", International Conference on Role of Energy for Sustainable Social Development, 14th-15th May 2023, Kathmandu, Nepal

Book Publications

- "A Textbook of Power Plant Design", Pratibha Publication, Engineering Undergrads Course Material.

RESEARCH

Tribhuvan University, Department of Electrical Engineering,

Pokhara, Nepal, Electrical Machine Lab, Lab Intern

- Assisted Professor in original research on Dynamic Modelling and Simulation.
- Conducted Rotor Dynamics Test and Noise Vibration Analysis.
- Set up all laboratory equipment and maintained safe laboratory environment

Tribhuvan University, Department of Electrical Engineering,

Pokhara, Nepal, Power System Lab, Lab Intern.

- Simulate and analyze transient behaviour during switching events and disturbances.

- Conducted Experiments with various power electronic devices and converters such as inverters, rectifiers, and DC-DC converters.
- Conducted Research on Cybersecurity vulnerabilities and threats in power systems.

EMPLOYMENT HISTORY

Apical Academy Secondary School,

Hetauda, Nepal May 2023---Present, Computer Science Teacher

- Developed and delivered lesson plans for computer science subjects, catering to the diverse learning needs of more than 50 students.
- Implemented innovative teaching strategies, resulting in improvement in student engagement and performance.

Author, Pratibha Publication

Kathmandu, Nepal July 2023---Present

- Authored a textbook on "*Power Plant Design*", with the faculty professor of Department of Electrical Engineering.

Graphic Designer, Department of Electrical Engineering, Pashchimanchal Campus

Pokhara, Nepal April 2021---March 2022

- Designed First E-Magazine of Electrical Department "*E-Buzz*".

EXPERIENCE

President, Electrical Generation Club

Pokhara, Nepal 2021---2022

- Systematized and facilitated training programs, providing technical skills to participants like Domestic wiring, Breadboard and Sensor Training.
- Developed a curriculum for Arduino Training and delivered sessions to students.

Faculty Representative, Club of Technical Students

Pokhara, Nepal 2021---2022

- Resolved department-related issues by collaborating with faculty members and implementing effective solutions.

CERTIFICATIONS

- [Power System: Generation, Transmission and Protection](#)
- [IBM Cybersecurity Analyst Specialization](#)
- [Python for Cybersecurity Specialization](#)
- [Energy Production, Distribution & Safety Specialization](#)
- [Machine Learning Specialization](#)
- [Sustainable Cities Specialization](#)
- [AWS Cloud Solutions Architect](#)

SKILLS

- MATLAB, ANSYS Electronics
- Microsoft Office
- Power System Modelling and Design using ETAP
- Programming Languages: - Python, C, C++, Java

PROJECTS

Simulation of Unified Power Flow Controller for improving Transient Stability

- Conducted UPFC Modelling
- Conducted time-domain simulations that replicate transient events such as faults, disturbances, and switching operations to assess system stability.

Transient Analysis of IEEE Nine Bus System

- Performed Dynamic modelling of system components for transient events
- Analysis of various types of faults and fault currents
- Assessed of transient stability and system recovery

SmartPrepHub – A Testprep Platform- (*Ongoing*)

- We founded SmartPrepHub to address the confusion, high costs and lack of accessibility we observed in the test preparation industry.
- Implementing deep programming languages C++, Javascript and Python.

Portfolio Website

- Simply Visit www.rahulkumarjha.com.np to view my portfolio website.

"Electric Power Conversion using Matrix Converter"

- Harmonics Mitigation: The project focuses on mitigating harmonics in electric power conversion using a matrix converter, with a specific target of limiting harmonic distortion to 2%.
- Incorporation of Quantum Annealing: The project explores the potential of quantum annealing as a solution to minimize harmonic distortion, demonstrating an innovative approach to addressing power system challenges.

Analysis and Detection of Power System Network Faults with Wavelet Transform

- Fault Analysis: The project involves the analysis of power system network faults, emphasizing the use of the wavelet transform technique for detection and characterization.
- Wavelet Transform Application: It showcases the application of Wavelet Transform in power systems, highlighting its role in fault detection and providing insights into enhancing the reliability of power networks.