CURRICULUM VITAE

Dr. Aanchal Singh Vardhan is an assistant professor in the Department of Electrical Engineering at Shri G. S. Institute of Technology and Science (SGSITS), Indore (MP). She received her B.Tech. degree in electrical engineering from Sam Higginbottom University of Agriculture, Technology, and Sciences, Allahabad (Uttar Pradesh), India, in 2019; her M.E. degree in electrical engineering with a specialization in power electronics from Shri G.S. Institute of Technology and Science, Indore (Madhya Pradesh), India, affiliated with Rajiv Gandhi University of Technology, Bhopal (Madhya Pradesh), India, in 2022; and her Ph.D. degree from the National Institute of Technology, Jamshedpur (Jharkhand), India, in 2025. Her basic education started at Vidya Vihar, Birla Institute of Technology & Science, Pilani (Rajasthan), India, in 1999. She has published many research papers in reputed international journals and conference proceedings.

S. No.	Degree	Specialization	University / Board	Year
1.	**Ph.D.**	Performance Enhancement of DFIG-Based Grid-Integrated WECS	National Institute of Technology, Jamshedpur, Jharkhand	**2025**
2.	**Master of Engineering**	Power Electronics	Shri G. S. Institute of Technology and Science, Indore	**2021**
3.	**Bachelor of Technology**	Electrical Engineering	Sam Higginbottom University of Agriculture, Technology and Sciences, Allahabad	**2019**

S. No.	Designation	Department	Employer Name	Duration of Employment
1.	**Assistant Professor**	Electrical Engineering	Shri G. S. Institute of Technology & Science, Indore (MP), India	July 2025 to Till Date

A. **List of Books/Chapters:**	
S. No.	**Details**
1.	Aanchal Singh S Vardhan, Aanchal Verma, Jyotsna Ogale, RK Saket, and Stuart Galloway. "**Modern aspects of probabilistic distributions for reliability evaluation of engineering systems**." *Reliability Analysis of Modern Power Systems* (2024): 217-245.
2.	Lakhan Singh Titare, Aanchal Singh S Vardhan, Liladhar Arya, and Devkaran Sakravdia. "**Probabilistic Voltage Security Assessment and Enhancement Using Rescheduling of Reactive Power Control Variables**." *Reliability Analysis of Modern Power Systems* (2024): 199-216.
3.	Sachin Kumar, Sandeep Kumar, Aanchal Singh S Vardhan, RK Saket, and P. Sanjeevikumar. "**Reliability Assessment of Distribution Systems Integrated with Renewable Energy Systems**." *Reliability Analysis of Modern Power Systems* (2024): 301-324.

4.	Sachin Kumar, Aanchal Singh S. Vardhan, Akanksha Singh S. Vardhan, R. K. Saket, D. P. Kothari, and Saeid Eslamian. "**Hydropower and floods**." In *Flood Handbook*, pp. 111-142. CRC Press, 2022.

B. **List of SCI/SCIE Journals:**

S. No.	**Details**
1.	Sakshi Sharma, Keshav Kumar, Rupendra Kumar Pachuari, Piyush Kuchhal, Aanchal Singh S Vardhan, Baseem Khan,and Ahmed Ali. "**Numerical simulations, design and modeling of methylammonium tin iodide halide-based single-junction perovskite solar cell**." *Electrical Engineering* 106, no. 2 (2024): 1225-1239. https://doi.org/10.1007/s00202-023-02166-x
2.	Arpita Basu, Madhu Singh, and Aanchal Singh S. Vardhan. "**Energy regeneration of a position sensorless BLDC-driven PV e-rickshaw with regenerative braking**." *Electrical Engineering* 106, no. 2 (2024): 1357-1372. https://doi.org/10.1007/s00202-023-02140-7
3.	Aanchal Singh S Vardhan, and U. K. Sinha. "**Control strategies and performance analysis of doubly fed induction generator for grid-connected wind energy conversion system**." *Electrical Engineering* 106, no. 2 (2024): 1203-1224. https://doi.org/10.1007/s00202-023-02079-9
4.	Om Prakash Bharti, Aanchal Singh S. Vardhan, Akanksha Singh S. Vardhan, R. K. Saket, and D. P. Kothari. "**Static output feedback-based dfig controller design for the wind-driven scheme**." *IETE Journal of Research* 70, no. 2 (2024): 1833-1842. https://doi.org/10.1080/03772063.2023.2172465
5.	Venkateshwar Reddy Gatla, Satish Kumar Injeti, Sowjanya Kotte, P. Kumar Polamarasetty, Ramakrishna SS Nuvvula, Aanchal S. Singh Vardhan, Madhu Singh, and Baseem Khan. "**An Effective Approach for Extracting the Parameters of Solar PV Models Using the Chaotic War Strategy Optimization Algorithm with Modified Newton Rapson Method**." *IEEE Journal of the Electron Devices Society* 12 (2023): 849-858. https://doi.org/10.1109/JEDS.2023.3340445
6.	Kumar, Kanhaiya, Lokesh Varshney, Geetika Varshney, and Aanchal Singh S. Vardhan. "**Control Strategies for Energy Enhancement of LDR and GPS based PV System under Varying Weather Conditions**." (2023). https://doi.org/10.21203/rs.3.rs-3405735/v1
7.	Gatla, Venkateshwar Reddy, Satish Kumar Injeti, Sowjanya Kotte, P. Kumar Polamarasetty, Ramakrishna SS Nuvvula, Aanchal S. Singh Vardhan, Madhu Singh, and Baseem Khan. "**An Effective Approach for Extracting the Parameters of Solar PV Models Using the Chaotic War Strategy Optimization Algorithm with Modified Newton Rapson Method**." *IEEE Journal of the Electron Devices Society* 12 (2023): 849-858. https://doi.org/10.1109/JEDS.2023.3340445
8.	Kanhaiya Kumar, Lokesh Varshney, Geetika Varshney, and Aanchal Singh S Vardhan "**Control strategies for energy enhancement of discontinuous GPS tracking PV system under varying weather conditions**". *Electr Eng* 106, 1313–1326 (2024). https://doi.org/10.1007/s00202-023-02216-4
9.	Anand Kumar Kyatsandra, Sachin Kumar, Kumari Sarita, Aanchal Singh S. Vardhan, Akanksha Singh S. Vardhan, and R. K. Saket. "**Innovative design and development of biological fuel cell-based energy conversion system**." *Journal of The Institution of Engineers (India): Series B* 104, no. 5 (2023): 1119-1131. https://doi.org/10.1007/s40031-023-00920-0

10.	Anand Kumar Kyatsandra, R. K. Saket, Sachin Kumar, Kumari Sarita, Aanchal Singh S. Vardhan, and Akanksha Singh S. Vardhan. "**Development of trinetra: a sensor-based vision enhancement system for obstacle detection on railway tracks**." *IEEE Sensors Journal* 22, no. 4 (2022): 3147-3156. https://doi.org/10.1109/JSEN.2021.3140032
11.	Aanchal Singh S. Vardhan, and Rakesh Saxena. "**Vector control of DFIG-based wind turbine system**." *ASS Vardhan and R. Saxena/GMSARN International Journal* 16 (2022): 348-358.
12.	Lokesh Varshney, Aanchal Singh S. Vardhan, Akanksha Singh S. Vardhan, Sachin Kumar, R. K. Saket, and P. Sanjeevikumar. "**Performance characteristics and reliability assessment of self-excited induction generator for wind power generation**." *IET Renewable Power Generation* 15, no. 9 (2021): 1927-1942. https://doi.org/10.1049/rpg2.12116
13.	Om Prakash Bharti, Kumari Sarita, Aanchal Singh S. Vardhan, Akanksha Singh S. Vardhan, and Ram K. Saket. "**Controller design for DFIG-based WT using gravitational search algorithm for wind power generation**." *IET Renewable Power Generation* 15, no. 9 (2021): 1956-1967. https://doi.org/10.1049/rpg2.12118
14.	Snigdha Sharma, Lokesh Varshney, Rajvikram Madurai Elavarasan, Akanksha Singh S. Vardhan, Aanchal Singh S. Vardhan, R. K. Saket, Umashankar Subramaniam, and Eklas Hossain. "**Performance enhancement of PV system configurations under partial shading conditions using MS method**." *IEEE Access* 9 (2021): 56630-56644. https://doi.org/10.1109/ACCESS.2021.3071340
15.	KS Anand Kumar, Aanchal Singh S. Vardhan, Akanksha Singh S. Vardhan, Sachin Kumar, R. K. Saket, R. Rajendran, and Saeid Eslamian. "**Microbial fuel cells for a soil-based green energy conversion system**." *International Journal of Hydrology Science and Technology* 11, no. 4 (2021): 439-460. https://doi.org/10.1504/IJHST.2021.115491
16.	Kumari Sarita, Sachin Kumar, Aanchal Singh S. Vardhan, Rajvikram Madurai Elavarasan, R. K. Saket, G. M. Shafiullah, and Eklas Hossain. "**Power enhancement with grid stabilization of renewable energy-based generation system using UPQC-FLC-EVA technique**." *IEEE Access* 8 (2020): 207443-207464. https://doi.org/10.1109/ACCESS.2020.3038313
17.	Raja Ram Kumar, Priyanka Devi, Chandan Chetri, Aanchal Singh S. Vardhan, Rajvikram Madurai Elavarasan, Lucian Mihet-Popa, and Ram Khelawan Saket. "**Design and characteristics investigation of novel dual stator pseudo-pole five-phase permanent magnet synchronous generator for wind power application**." *IEEE Access* 8 (2020): 175788-175804. https://doi.org/10.1109/ACCESS.2020.3025842

C. List of National/International Conferences:

S. No.	Details
1.	Mahmoud A Attia, Almoataz Y Abdelaziz, Kumari Sarita, Aanchal Singh S Vardhan, Akanksha Singh S Vardhan, Saumya Singh, and R. K. Saket. "**AVR performance enhancement by using adaptive PI controller**." In *Proceedings of Third International Conference on Intelligent Computing, Information and Control Systems: ICICCS 2021*, pp. 249-260. Singapore: Springer Nature Singapore, 2022. https://doi.org/10.1007/978-981-16-7330-6_19
2.	Omar M Saber, Abdallah El-Marhomy, Mahmoud A. Attia, Almoataz Y. Abdelaziz, Kumari Sarita, Aanchal Singh S. Vardhan, Akanksha Singh S. Vardhan, and R. K. Saket. "**Maximizing the output power of wave energy conversion system by using model predictive controller based on equilibrium optimizer**." In *Proceedings of Third International Conference on*

	Intelligent Computing, Information and Control Systems: ICICCS 2021, pp. 843-858. Singapore: Springer Nature Singapore, 2022. https://doi.org/10.1007/978-981-16-7330-6_62
3.	Ahmed M Shawqran, Abdallah El-Marhomy, Mahmoud A. Attia, Almoataz Y. Abdelaziz, Aanchal Singh S. Vardhan, Akanksha Singh S. Vardhan, R. K. Saxena, and R. K. Saket. "**Experimental and Analytical Studies of Blade Angle Influences Under Normal and Faulty Conditions**." In *Proceedings of the 2nd International Conference on Recent Trends in Machine Learning, IoT, Smart Cities and Applications: ICMISC 2021*, pp. 211-227. Singapore: Springer Nature Singapore, 2022. https://doi.org/10.1007/978-981-16-6407-6_20

S. No.	Academic Research Projects	Abstract	Duration
1.	**Portable Solar Power Generator**	This research work describes a portable solar power generation system for use in the Indian military services. Considering the current scenario, the renewable energy resource, "The Portable Solar Power Generator", is designed. In this project, two solar panels were utilized, each with a 5V output, an MCB, a battery, a charge controller, and a 100W device with separate 5V and 12V outputs, suitable for various applications. I provided a jump starter and a battery charging system. It is movable and can be used in shops, tents, canopies, and street areas. The developed prototype is highly useful in various locations within Army camps.	**2018-2019**

Professional Activities
1. **M.I.E. (India):** (Associate member—AM1945621) Member of the Institution of Engineers (India)
2. **IEEE Member:** Kolkata Section

Reviewer of the Journal
1. IEEE Transactions on Intelligent Transportation Systems
2. IEEE Journal of the Electron Devices Society
3. IET Renewable Power Generation
4. IET Generation, Transmission & Distribution
5. IET Electrical Systems in Transportation
6. IEEE Transactions on Intelligent Transportation Systems
7. IEEE Journal of the Electron Devices Society

International Conferences & Webinars Attended

1.	Jointly organized by the Electrical Engineering Departments of Shri G. S. Institute of Technology and Science, Indore (SGITS), Manipur Technical University, Imphal (MTU), College of Engineering Pune (COEP), 21st December 2020, one-day online **"Research Scholar's Conclave 2020" supported by TEQIP III-Centre** of **Excellence in Smart Renewable Energy Systems (CoE-SRES).**
2.	Successful participation in the 02 Days Faculty Development Program from 11-12 Dec, 2020, on "**Power System Design Simulation and Analysis using Dig SILENT Power Factory Software**" of Dig SILENT GmbH, Germany, in association with M/s DELLSOFT technologies Pvt. Ltd., New Delhi.
3.	Successfully participated in the Five Days Online Faculty Development Program on **"Recent Trends in Intelligent Control Techniques for Renewable Energy Systems and Electric Vehicles",** held during October 12-16, 2020, at the Department of Electrical Engineering, National Institute of Technology Hamirpur, Himachal Pradesh, India.
4.	This is to certify that Ms. Aanchal Singh S. Vardhan from SGSITS, INDORE has participated in the short-term training program "**Recent Advances in Power Electronics & its Applications**" sponsored by TEQIP-III from September 22nd, 2020 to September 26th, 2020, organized by the Department of Electrical Engineering, JEC, Jabalpur.
5.	Successfully participated in the one-week short-term course on "**Stability Analysis, Protection and Control of Microgrid**" from 25/09/2020 to 29/09/2020, jointly organized by the Department of Electrical Engineering and the Department of Instrumentation and Control Engineering, Dr B. R. Ambedkar National Institute of Technology, Jalandhar, Punjab.
6.	This is to certify that AANCHAL SINGH S VARDHAN from SGSITS, INDORE, has successfully attended the webinar on "**Enhancement of Testing and Consultancy in the Institute** organized by the Department of Electrical Engineering, S.G.S.I.T.S., Indore**,** on 14/06/2020.
7.	Jointly organized by the Electrical Engineering Departments of Shri G. S. Institute of Technology and Science, Indore (SGITS), Manipur Technical University, Imphal (MTU), College of Engineering Pune (COEP), on 21st December 2020 one-day online **"Research Scholar's Conclave 2020"** supported by TEQIP III-Centre of Excellence in Smart Renewable Energy Systems (CoE-SRES).
8.	Successful participation in the 02 Days Faculty Development Program from 11-12 Dec, 2020, on "**Power System Design Simulation and Analysis using Dig SILENT Power Factory Software**" of Dig SILENT GmbH, Germany, in association with M/s DELLSOFT technologies Pvt. Ltd., New Delhi.

Er. Aanchal Singh S. Vardhan
B. Tech. (Electrical Engineering), **M.E.** (Power Electronics), **MIE** (India)
Grassroots Innovator of GYTI Award: 2020
Department of Electrical Engineering
Shri G. S. Institute of Technology and Science (SGSITS), Indore (MP)
Email: aanchal_vardhan@sgsits.ac.in