

# VENKATESH DAGGUPATI

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## CAREER SUMMARY

Electrical Engineer with expertise in substation physical design, electrical drafting, and CAD standards compliance. Proficient in AutoCAD and Revit MEP for detailed substation drawings while ensuring adherence to utility CAD standards. Well-versed in industry regulations and skilled in managing multiple projects efficiently.

## EDUCATION

<b>Texas Tech University, Lubbock, TX</b> <i>Master of Science, Electrical Engineering</i> (GPA: 4.0/4.0)	<b>Aug 2025</b>
<b>Vasireddy Venkatadri Institute of Technology, India</b> <i>Bachelor of Technology, Electrical Engineering</i> (GPA: 8.16/10)	<b>Apr 2024</b>
<b>AANM&amp;VVRSR</b> <i>Diploma in Electrical and Electronics Engineering</i> (GPA: 93.46%/100)	<b>Apr 2021</b>

## TECHNICAL SKILLS

- **Design & Drafting::** substation physical design (4kV–500kV), including electrical layouts, grounding & conduit plans, elevations, section views, and control building plans. Skilled in AutoCAD, MicroStation, and Revit MEP, with expertise in CAD standards compliance and drawing review
- **Skills:** Electrical Machines, AutoCAD, MATLAB, Power Systems, Transformers, Renewable Energy: Solar, Wind, Biomass, Electrical Safety & NFPA 70E Standards

## EXPERIENCE

<b>Research Assistance at Texas Tech University</b> <i>IEEE 9-Bus Fault Detection in Transmission Line</i>	<b>Aug 2024 - Present</b>
<ul style="list-style-type: none"><li>• Developed an AI-based fault detection system for IEEE 9-bus transmission lines using CNN, ELM, and GNN, achieving high fault classification accuracy</li><li>• Simulated and analyzed transmission line faults (single-line-to-ground, line-to-line, three-phase) in MATLAB-Simulink, extracting key features using wavelet transform and time-series analysis.</li><li>• Optimized deep learning models (CNN, GNN) and machine learning models (ELM) for real-time fault detection, improving response time and accuracy for power system monitoring</li></ul>	
<b>ZF Technology   Electrical Engineer Intern</b>	<b>2024</b>
<ul style="list-style-type: none"><li>• Created MATLAB/Simulink models for analyzing power flow, voltage regulation, and fault conditions in transmission networks</li><li>• Developed and refined control algorithms for power system stability in transmission lines and substations, improving fault detection and response time</li><li>• Implemented advanced testing devices and methodologies, such as HIL simulation, to ensure the functionality and safety of Electric Vehicle components, leading to enhanced component reliability &amp; Enhanced EV systems by implementing quality assurance processes using tools like DIALux, resulting in improved efficiency and reliability</li></ul>	
<b>Sri Gajanan E slates pvt Ltd. Hyderabad   Electrical Engineer Intern</b>	<b>2021</b>
<ul style="list-style-type: none"><li>• Assisted in the design and implementation of power distribution systems, ensuring efficient load management and system reliability.</li><li>• Conducted electrical testing, fault diagnosis, and troubleshooting to ensure compliance with safety regulations and industry standards</li><li>• Gained hands-on experience in substation operations, including transformer maintenance, protection systems, and renewable energy integration.</li></ul>	

## Projects

<b>Microgrid with Renewable Energy Integration: A Path Towards Sustainable Electricity Distribution</b>	<b>2024</b>
<ul style="list-style-type: none"><li>• Developed MATLAB/Simulink simulation models to optimize power electronic converters and control strategies for seamless renewable energy integration.</li><li>• Designed and implemented advanced control techniques to minimize power fluctuations and enhance microgrid stability</li><li>• Improved system efficiency and reduced energy losses, ensuring reliable and sustainable electricity distribution.</li><li>• Integrated wind and solar energy sources into the microgrid, optimizing power flow and grid resilience.</li><li>• Conducted performance analysis under various load and generation scenarios to validate system robustness.</li><li>• Compared proposed strategies with conventional methods, demonstrating enhanced efficiency and reliability in renewable energy integration</li></ul>	
<b>Transmission Line Fault Detection Using Single Neural Network (SNN)</b>	<b>2022</b>
<ul style="list-style-type: none"><li>• Developed a Single Neural Network (SNN) model to detect and classify transmission line faults, improving grid stability</li><li>• Employed advanced feature extraction techniques on time-series data to enhance fault detection accuracy</li><li>• Optimized the SNN architecture for real-time fault identification, reducing detection latency in power systems.</li><li>• Validated the model's performance using simulated and real-world fault scenarios, ensuring robustness.</li><li>• Improved fault diagnosis efficiency by integrating automated classification and adaptive learning techniques.</li><li>• Implemented the SNN model in a simulation environment to assess its effectiveness under various fault conditions.</li><li>• Compared the SNN approach with traditional fault detection methods, demonstrating superior accuracy and faster response times.</li></ul>	

## SPEED CONTROL OF BLDC MOTOR USING LUO CONVERTER

2023

- Designed a power-efficient BLDC motor drive system with precise speed control, aiming to improve system performance in renewable energy applications.
- Implemented a Luo converter to regulate voltage levels, effectively reducing voltage ripples and improving the overall stability of the motor drive system.
- Simulated and validated the entire system using MATLAB/Simulink, optimizing the performance under various load conditions and verifying the effectiveness of the Luo converter.
- Enhanced motor performance, efficiency, and power stability, reducing energy losses and improving the motor's operational lifespan in variable-speed applications.
- Conducted performance analysis, demonstrating significant reduction in voltage ripple, improved torque generation, and reliable speed regulation across different operating points.

## Godown Wiring System for Efficient Lighting Control

2021

- Designed and implemented a Godown Wiring system for a warehouse to optimize lighting control and reduce energy consumption.
- Utilized sequential switching to control multiple lights in a row, improving power efficiency and minimizing unnecessary electricity usage.
- Integrated automatic lighting control with motion sensors to activate lights only when needed, enhancing operational efficiency and safety.
- Conducted thorough testing and troubleshooting of the system to ensure compliance with electrical safety standards and operational reliability.
- Delivered a cost-effective and scalable solution for large storage areas, reducing maintenance costs and improving the overall lighting system performance.

## PUBLICATIONS

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- A. Akhileshwari, D. Venkatesh, M. NarasaBabu, G. NiksonPaul, S. RavindraA. Speed Control of BLDC Motor Using LU Converter. *Published in International Research Journal of Engineering and Technology*
- C. V. S. Phanindra Kumar, D. Venkatesh, D. Suneel Kumar, J. Greshma Reddy, G. Hema Kavya, N. Mani Kumar. COMBINED LFC AND AVR OF MULTI AREA MULTI SOURCE POWER SYSTEM WITH ARTIFICIAL BEE COLONY ALGORITHM BASED PID CONTROLLER. *Published in Iterative International Publishers (IIP)*

## CERTIFICATIONS

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- **Electrical AutoCAD - Substation & Power System Design:** Proficient in designing substations and power systems using AutoCAD.
- **MATLAB On ramp and Simulink on ramp:** Completed MATLAB and Simulink Onboarding, acquiring expertise in modeling, simulation, and data analysis for engineering applications.
- **NFPA 70E -2024 - Electrical Safety in the Workplace:** Certified in electrical safety standards for workplace hazard prevention
- **Energy Production, Distribution & Safety Specialization Certificate:** Specialized in Energy Production, Distribution, and Safety, with a focus on optimizing systems and ensuring reliable and secure energy management.
- **10-Hour Construction Industry Outreach (OSHA):** Completed OSHA training on construction safety and regulations.
- **Lockout Tagout (LOTO) & Electrical Safety:** Trained in LOTO procedures to ensure electrical safety.