

# DHAVAL VYAS

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## Summary

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Electrical Engineering undergraduate at IITRAM with industrial exposure in transformer manufacturing, induction motor systems, and utility-scale solar power engineering. Skilled in power systems, electrical machines, MATLAB/Simulink, power quality analysis, and protection systems with experience in industrial testing and real-time embedded implementations.

## Education

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**Institute of Infrastructure Technology Research and Management (IITRAM)**  
B.Tech in Electrical Engineering  
CPI: 8.80

Ahmedabad, Gujarat  
Oct 2022 – May 2026

## Technical Skills

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**Electrical Engineering:** Power Systems, Electrical Machines, Power Electronics, FACTS, Switchgear & Protection  
**Industrial Systems:** Industrial Sensors, Motor Systems, Electrical Protection Systems, Industrial Testing  
**Embedded & Tools:** MATLAB, Simulink, STM32, Arduino Mega, ESP32, PVsyst  
**Engineering Skills:** Industrial Troubleshooting, Technical Documentation, System Analysis, Problem Solving

## Industrial Experience

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### RKC Infrabuilt Pvt. Ltd.

Dec 2025 – May 2026

*Final Semester Intern – Solar Power Plant Systems*

- Assisted in solar power plant system-level design, inverter configuration, electrical protection systems, and plant layout planning.
- Gained exposure to grid integration concepts, power factor management, and utility-scale PV electrical systems.

### Atlanta Electricals Limited

Jun 2025 – Jul 2025

*Summer Intern – Transformer Manufacturing*

- Gained exposure to transformer winding preparation, core assembly, winding resistance testing, magnetic balance testing, and final assembly procedures.
- Examined industrial transformer manufacturing workflows and electrical testing procedures for quality evaluation.

### Aqua Machineries Pvt. Ltd.

Jun 2024

*Internship Trainee – Electrical Machines*

- Explored manufacturing and testing processes of three-phase squirrel-cage induction motors used in submersible pump systems.
- Observed stator winding insertion, VPI process, sensor integration, and motor performance testing procedures.

## Projects

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### Real-Time Harmonic Mitigation using Goertzel Algorithm and NCO

- Developed a four-stage real-time harmonic mitigation framework using MATLAB, Arduino Mega, ESP32, and STM32 for 50 Hz fundamental extraction, dynamic frequency tracking, and NCO-based waveform reconstruction in power quality applications.

### Impact of VAR Compensation on Power Distribution Systems

- Developed a sensitivity-based reactive power compensation and hosting capacity assessment framework for the IEEE 33-bus radial distribution system using MATLAB, resulting in improved voltage regulation and reduced power losses.

### Alternator Fault Protection and Analysis using MATLAB Simulink

- Developed a MATLAB/Simulink-based alternator protection scheme incorporating overcurrent and undervoltage relay logic, fault detection, circuit breaker isolation, and post-fault system behavior analysis for industrial power system applications.

## Publications & Achievements

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- Research paper titled “*Development of Real-time Framework for Extracting Fundamental Sinusoid Using NCO Supported Goertzel Algorithm*” accepted at IEEE SAFET 2026, with an extended manuscript currently under preparation for IEEE Transactions submission.
- Smart Anti-Theft Security System presented at ICRAM 2025 conference and Selected for conference proceedings publication.
- Undergraduate Research Awards (URA-I and URA-II), IITRAM.
- Dean’s Certificate of Academic Excellence