

# Anandhu Prakash

Embedded & Systems Engineer

+91 8301812090 | anandhuprakash682@gmail.com | India

linkedin.com/in/anandhu-prakash | github.com/goldr0g3r | anandhuprakash.tech

## SUMMARY

Electrical & Electronics Engineer with 2+ years of experience designing and validating safety-critical embedded systems at Bosch Global Software Technologies. Cross-trained in subsea ROV operations (Horizon Geosciences) and high-voltage dielectric reliability research. Seeking embedded systems engineering roles focused on design, integration, and validation of hardware for harsh and extreme operating environments.

## SKILLS

**Languages:** Embedded C/C++, Python, MATLAB

**Embedded & Hardware:** STM32 microcontrollers, AUTOSAR, ECU Development, KiCad PCB Design, Power Electronics

**Simulation & Modeling:** MATLAB / Simulink, COMSOL Multiphysics, ANSYS Electronics Suite

**Systems & Validation:** Software-in-the-Loop (SIL) Testing, Model-Based Development, Hardware/Firmware Integration, Fault Diagnosis

**Subsea & Communications:** RS-232 / RS-422 / RS-485, Tethered-Vehicle Telemetry, Pressure-Compensation Concepts

**Tools & Workflow:** Git, Linux, Python Build Automation

## EXPERIENCE

### Bosch Global Software Technologies

Jul 2023 – Present

SIL Expert & Systems Developer

Coimbatore, India

- Executed Software-in-the-Loop (SIL) test campaigns on safety-critical inverter control software, identifying and resolving defects in simulation prior to hardware deployment.
- Architected and deployed a Python build-and-integration automation framework, **reducing the overall process cycle time by 40%**.
- Engineered and integrated MATLAB / Simulink models for power-electronics control units; validated closed-loop behavior against performance specifications.
- Led root-cause analysis of integration faults spanning ECU software, firmware, and inverter hardware; coordinated cross-functional teams to restore operational integrity.

### Bosch Global Software Technologies

Feb 2023 – Jun 2023

Embedded Software Intern

Coimbatore, India

- Developed and integrated Complex Device Drivers (CDD) within the AUTOSAR architecture for embedded automotive applications.
- Programmed and debugged firmware on STM32 microcontrollers in C/C++ using standard debug tooling to identify and resolve firmware-level issues.
- Contributed to model-based development workflows, assisting in the translation of system models into functional embedded code.

## CERTIFICATIONS & TRAINING

### Horizon Geosciences

ROV Pilot Technician Training

Feb 2026

Sharjah, UAE

- ROV system architecture, control and power distribution, and tethered-vehicle dynamics.

- Industrial serial protocols (RS-232 / RS-422 / RS-485) and pressure-compensation techniques for high-pressure subsea housings.
- Subsea sensor integration (cameras, sonar, navigation systems) and fault-aware operational workflows for safety-critical offshore environments.

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## EDUCATION

**Mar Athanasius College of Engineering**, Kothamangalam  
B.Tech in Electrical & Electronics Engineering  
Volunteering: IEEE Student Branch, NSS

*Aug 2019 – Jun 2023*  
CGPA: 7.3 / 10

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## PROJECTS

**High-Voltage Dielectric Reliability — TiO<sub>2</sub> / Epoxy Nanocomposite Insulation** *COMSOL Multiphysics*  
Developed and characterized TiO<sub>2</sub>-epoxy nanocomposite materials with improved AC and DC dielectric breakdown strength. Combined laboratory testing with COMSOL simulation to inform insulation design for high-electric-field service environments. Findings published in AIP Conference Proceedings (see Publications).

**High-Frequency ZVS Power Converter** *Power Electronics*  
Designed and built a high-frequency Zero-Voltage-Switching converter demonstrating efficient power conversion and high-voltage generation. Validated dual operation as a flyback-transformer driver and as the core stage of a wireless power-transmission demonstrator.

**Rooftop Solar Power Plant Design** *Distributed Power Systems*  
Sized and designed an end-to-end rooftop solar plant — panel array, inverter, and battery bank — with focus on field-realistic system sizing and balance-of-system integration.

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## PUBLICATIONS

**DC Breakdown Studies of Epoxy-TiO<sub>2</sub> Nanocomposite Material at Low Filler Concentrations**, AIP Conference Proceedings.  
DOI: [doi.org/10.1063/5.0230711](https://doi.org/10.1063/5.0230711)

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## HONORS & AWARDS

**Runners-Up — EV Hack 2.0** *National-Level EV Hackathon*  
Secured second place in the National-Level Electric Vehicle Hackathon jointly hosted by BGSW and the IEEE IE/PELS Joint Chapter. Tools: MATLAB, Simulink, ANSYS Electronics Suite.