

## Education

- 2022-till date **TY B.Tech, Electrical Engineering**, *VJTI*, Mumbai, Maharashtra, India.
- 2020-2022 **Higher Secondary Education**, *R.R.International*, Mumbai, Maharashtra, India.
- 2020 **Secondary School Certificate**, *V.P.M's Vidya Mandir*, Mumbai, Maharashtra, India.

## Experience

- Dec-2024 to Jan-2025 Winter Internship, at **CDRC, E-MC<sup>2</sup> Lab, VJTI**, Mumbai, India  
FPGA-in-the-loop realization for the grid-connected inverter  
Design and implementation of the control exoskeleton for a 13 degree of freedom humanoid robotic arm.
- May-2024 to July-2024 Summer Internship, at **CDRC, E-MC<sup>2</sup> Lab, VJTI**, Mumbai, India  
Bionic robotics and Grid Connected Inverter (GCI) stability analysis.
- Dec-2023 to Jan-2024 Winter Internship, at **CDRC, E-MC<sup>2</sup> Lab, VJTI**, Mumbai, India  
Research on inverter integration in IEEE 39 bus system and analysis of Hybrid Grid stability.

## Projects Participated and Developed

- 2025-ongoing **Hardware-In-The-Loop of Closed loop Stepper motor controller using FPGA** : Analysis of Controller logic for Stepper motor and its FIL implementation.
- 2024-ongoing **Hardware-In-The-Loop implementation of 5DOF robotic arm** : By taking real world values of position of custom made robotic arm and reflecting it into the simulation and simultaneously controlling that robotic arm with simulation in real time is the main agenda of this project.
- 2024 **FPGA-In-The-Loop realization of PID controller** : Complete FIL realization of a mathematical model of PID controller controlling a DC motor. A study on the proper methodology of FIL realization of a discrete mathematical model of any system in FPGA with a focus on optimization techniques used for HDL conversion stage of FIL.
- 2024-ongoing **FPGA-In-The-Loop realization of Mathematical model of physical Inverter** : Performed load flow analysis of a microgrid system with grid-forming inverter connected to load and infinite bus. The grid-connected inverter model was run in the FPGA-In-The-Loop.
- 2024-ongoing **Microgrid analysis using FPGA-in-the-Loop** : Performed load flow analysis of a microgrid system with a grid-forming inverter connected to the load and infinite bus. The grid connected inverter model was run in the FPGA-In-The-Loop.
- 2024-ongoing **Hybrid Micro-grid analysis using Typhoon-HIL** : Modified the IEEE 9 bus system to accommodate renewable sources of PV and Wind type. Stabilized the system with renewables integrated. introduced fault to conduct faults analysis in SIL.
- 2023-ongoing **Hybrid Grid Stability Analysis**: Analysis of IEEE 39 bus system and further hybridization of it by integrating renewable in it.

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## Selected Publications

**IEEE PESGM** Ojasvi S. Sonone, Amey S. Chavekar, Parthsarathi Goyanka, Sunny Kumar and Sushma R. Wagh, "Grid-forming Inverter Implementation using Arty A7 100T: A FIL for Microgrid Analysis," (2025)

**IEEETRANCTIONS** Ojasvi S. Sonone, Amey S. Chavekar, Parthsarathi Goyanka, Sunny Kumar and Sushma R. (2025) Wagh, "RT FIL Analysis for Inverter Integrated Microgrid using ARTY A7 100T,"

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## Skills and Knowledge

Hardware: Arduino, FPGA, RasPi, Soldering, 3D printing, 3D designing, Circuit designing, Mechatronics.

Languages: C, C++, MATLAB, Simulink, Verilog, Git,  $\LaTeX$

Software: Xilinx vivado, Arduino IDE, MATLAB/ Simulink, Typhoon, LABVIEW, Multisim, HYPERSIM, Visual Studio, Visio, MS Office, Autocad, Blender, Linux.

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## Professional Membership

**IEEE** Student Member (Number - 100457001)

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## Training Courses / Workshops Attended (Selected)

2023 **IEEE VJTI Workshop on Basic Electronics & Analog Integrated Circuits.**

2023 **Society of Robotics and Automation's WALL-E** workshop on introduction to embedded systems by making a line following and self balancing bot

2023 **Blockchain Introduction Workshop** by EthVJTI, Mumbai, India.

2024 **Industrial Control System debugging** session SPIT college of engineering.

2024 **Industrial machine simulation using Matlab/Simulink.**

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## Achievements

2018 Ranked first in the **NELTAS**, English Competency Analytical Test.

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2019 Awarded the **Best Guide Award** by V.P.M's Vidya Mandir, Mumbai.

2019 **State level Kho-Kho Player.**

2023 **Winner of General Knowledge competition** conducted by debate & literary arts society VJTI.

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## References

Dr. S.R Wagh

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Dr. N.M Singh

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