

# TEJA GOLLA

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## Education

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<i>Doctor of Philosophy in Control Systems, IIT Kharagpur   Ongoing</i>	9.85/10.00
<i>Bachelor of Technology in Electrical Engineering, IIT Kharagpur   2017-2021</i>	9.14/10.00
<i>Intermediate Education, Narayana Junior College, Telangana   2015-2017</i>	981/1000
<i>Secondary Education, Dr. KKR's Gowtham School, Andhra Pradesh   2014-2015</i>	9.70/10.00

## Experience

### Qualcomm India Pvt. Ltd.

May 2022 – Aug 2022

- Fixed frequency four-phase buck converter under voltage mode control is designed for automotive applications using MATLAB Simulink model. High-side currents are sensed and low BW compensation is added for equal current sharing among the phases. PID and a Type-III compensator is designed using a small-signal based approach. Near-time optimal recovery is achieved using large-signal PID tuning and its faster transient response is compared with small-signal tuning.

### Xilinx India Technology Services Pvt. Ltd.

May 2020 – July 2020

- Studied the PYNQ-Z2 Board, its architecture, and their design using Xilinx Zynq SoCs. Explored the Zynq SoC processors, their bus architecture, processing system, and programmable logic. Learned about the Field Programmable Gate Arrays, Application Specific Integrated Circuits and their architectural modules, and architectural design flow. Studied the interface of Jupyter Lab with the PYNQ board and learned about the ARM AMBA Architecture, the AMBA AXI Protocol and the AXI architecture.

## Projects

### Fully Digital Peak CMC of Multiphase Buck Converter | Bachelor's Thesis

2020-2021

- Developed a custom MATLAB simulink model for the fixed frequency uniform and event-based sampling fully-digital peak CMC techniques of a two-phase buck converter. Worked on the fast-scale instability and investigated the slope requirements to maintain the closed-loop stability. Developed the large signal discrete-time model, implemented and then validated using MATLAB Simulink model. Analyzed the effect of the sampling delay on the stability of the system, worked on the improvement of the stability and performance of the system using event-based sampling, and compared its superior performance with uniform sampling

## Academic Publications

- P. Majumder, **T. Golla**, S. Kapat and D. Kastha, "Event-based Constant On-Time Digital Current Mode Control Techniques in Series Capacitor Buck Converters for Enhanced Stability and Performance," 2024 IEEE Energy Conversion Congress and Exposition (ECCE), Phoenix, AZ, USA, 2024, pp. 3798-3803, doi: 10.1109/ECCE55643.2024.10861638.
- T. Golla**, S. Kapat and P. T. Krein, "State-Feedback Design Framework for Current-Mode-Controlled Multiphase Boost Converters with Fast Transient Response and Adaptive On-Time," 2024 IEEE Transportation Electrification Conference and Expo (ITEC), Chicago, IL, USA, 2024, pp. 1-6, doi: 10.1109/ITEC60657.2024.10598886.
- T. Golla**, S. Kapat, N. Chittaragi, R. A. Setty and S. Sridharan, "Controller Design and Phase Current Balancing for Fast Dynamic Performance in Voltage Mode Controlled Multiphase Buck Converters," 2023 IEEE Applied Power Electronics Conference and Exposition (APEC), Orlando, FL, USA, 2023, pp. 2163-2169, doi: 10.1109/APEC43580.2023.10131482.
- R. Talukder, **T. Golla**, R. S. A, S. Sridharan and S. Kapat, "Performance and Stability Analysis of a Multiphase Buck Converter under Mixed-Signal Current Mode Control for Mobile and Automotive Applications," 2022 IEEE 1st Industrial Electronics Society Annual On-Line Conference (ONCON), Kharagpur, India, 2022, pp. 1-6, doi: 10.1109/ONCON56984.2022.10126673.
- T. Golla**, R. Talukder and S. Kapat, "Enhanced Stability with Fast Transient Performance in Digitally Current Mode Controlled Multi-phase Buck Converters using Event-based Sampling," IECON 2022 – 48th Annual Conference of the IEEE Industrial Electronics Society, 2022, pp. 1-6, doi: 10.1109/IECON49645.2022.9968810.

## Technical Skills

**Languages:** C, Python, Verilog, AVR Assembly Language, MATLAB

**Software:** Simulink, SIMetrix/SIMPLIS, LTSpice, Xilinx ISE, Vivado, Quartus, OrCad, Altium

## Academic Awards/Achievements

- Received a research grant of *Rs. 4,00,000* during the academic year 2022-24 as a part of the **PMRF scholarship**.
- Secured all India 46th rank in JEE Mains B.Arch Examination, 2017
- Secured all India 1857th rank in the JEE Mains B.Tech Examination, 2017
- Secured all India 2545th rank in the JEE Advanced Examination, 2017
- Secured State 241st rank in Andhra Pradesh EAMCET Examination, 2017
- Secured State 255th rank in Telangana State EAMCET Examination, 2017

## Competitions/Workshops

### Anadigix | Analog Devices

Jan 2020

- Secured 3rd position in the Anadigix event conducted by Analog Devices in KSHITIJ Techno-Management Fest at IIT Kharagpur. Designed and built an audio amplifier using an op-amp, followed by an emitter-follower circuit. Op-amp works as an amplifier and the emitter-follower works as a buffer and provides the current required to drive the loudspeaker.

## Position of Responsibility

- Worked as a TA for the NPTEL course *Digital Control in Switched Mode Power Converters and FPGA-based Prototyping in 2022*
- Engaged in the content creation of *Linear Algebra* for the students of HIJLI College as a part of **PMRF TA ship**
- Worked as a TA and conducted live doubt-clearing sessions as a part of **PMRF TA ship** for the following NPTEL courses:
  -  *Digital Control in Switched Mode Power Converters and FPGA-based Prototyping* from Jul 2023 to Oct 2023
  -  *Network Analysis* from Jan 2024 to Apr 2024
  -  *Basic Electrical Circuits* from Jul 2024 to Oct 2024
  -  *Network Analysis* from Jan 2025 to Apr 2025