Teja Golla

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Education

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

- T. Golla, S. Kapat, 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 & Expo (ITEC), Rosemont, IL, USA, 2024. **(Accepted)**
- 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 teaching assistant under Dr. Santanu Kapat for the course *Digital Control in Switched Mode Power Converters and FPGA-based Prototyping* offered by NPTEL
- Engaged in the content creation of *Linear Algebra* for the students of HIJLI College as a part of **PMRF TA ship**
- Worked as a teaching assistant and conducted live doubt-clearing sessions for the NPTEL course *Digital Control in Switched Mode Power Converters and FPGA-based Prototyping* from *July 2023* to *October 2023* as a part of **PMRF TA ship**
- Worked as a teaching assistant and conducted live doubt-clearing sessions for the NPTEL course *Network Analysis* from *Jan 2024* to *April 2024* as a part of **PMRF TA ship**