Qianxi Tang

Ph.D Student for Inverter Technology in Smart Grids

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Department of Applied Electronic Engineering
School of Electrical and Electronic Engineering

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EDUCATION

Bachelor and Diploma in Electrical Engineering and its Automation(Rail Traction Electrification)
Date of completion: Jun 16, 2022
GPA:3.87/4.0
School of Electrical Engineering
Beijing Jiaotong University
Adviors: Chun Dong (Beijing Jiaotong University), Guohong Zeng (Beijing Jiaotong University)
Bachelor and Diploma thesis: *The Cooperative Multi-agent System*

Ph.D student in Electrical Engineering
Starting from September 2022 and expected to graduate in July 2027
Department of Applied Electronic Engineering, School of Electrical and Electronic Engineering
Huazhong University of Science and Technology
Advisors: Li Peng (Huazhong University of Science and Technology)

RESEARCH INTERESTS

My general research interests are centered around distributed control and optimization in complex, cyber-physical, and networked systems with applications to smart power grids, robotic coordination, and advanced control methods. Topics of recent interest include

1. stability and control in low-inertia power systems,
2. the freedom and limitation of power electronics devices in smart power grids,
3. new standards of stability and resiliency in inverters based grids, and
4. sliding mode control for inverters.

SKILLS

Languages: C/C++, LaTeX, English (Speaking Fluently)

Tools: Git/GitHub, Matlab, PSpice, LTspice, Altium Designer

PROJECTS

The Cooperative Multi-agent System | *FAULHABER, Simulink, CANOPEN, Raspberry Pi 3 Model B*   2022
- Earned Outstanding undergraduate graduation thesis
- Developed a two-wheel self-balancing robot for building a multi-agent motion platform
- Used linear and nonlinear control methods, including PID scheduling, sliding mode control, and adaptive control
- Learned how to use Raspberry Pi in conjunction with Simulink

Ultra-High Efficiency Grid-Connected Power Conversion | *Matlab, Simulink, LTspice, Altium Designer* 2023-2024
- Developed a module-integrated converter with a primary-side full-bridge and a secondary-side cycloconverter
- Experimented with independent control over the capacitor voltage, soft-switching for all semiconductor devices, and full four-quadrant operation with the grid

450V to 3V DC-DC Conversion | *Matlab, Simulink, PLECS, Altium Designer, FlothermXT* 2024-2025
- Designed a bidirectional isolated topology for efficient power flow control
- Defined input and output voltage ranges: 2.5–3.65Vdc (low side), 430–530Vdc (high side)
- Ensured proper voltage regulation within specified ranges, considering system constraints
- Achieved full-load output power of 550W, supporting both charging and discharging modes
- Verified compatibility with various load types beyond resistive loads

TECHNICAL REVIEWER

Journals: IEEE Transactions on Power Electronics ∘ Transactions on Industrial Electronics
Conferences: The 2024 Annual Conference of the IEEE Industrial Electronics Society (IECON)

PUBLICATION

Conferences: A Slack Bus Grid-forming Inverter Based on Symmetric Sliding Mode Control Against Power Sharing Imbalances Among Microgenerators (Best Presentation Recognition)

AWARDS

- **Best Presentation Recognition**
  Awarded in IECON24 in Chicago, USA   Nov. 2024

- **Third Prize**
  Awarded in The 4th Sungrow University Innovation Contest   Mar. 2025