Abhinav Chinnusamy

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Education

University of Wisconsin-Madison
Master of Science in Electrical and Computer Engineering — *Expected May 2026*

Coursework: Power Electronic Circuits, Power Electronics Laboratory, Solid State Power Conversion, Introduction to Optimization, Electric Machines, Advanced Computer Control of Machines and Processes

Indian Institute of Technology — Dharwad, India
Bachelor of Technology in Electrical Engineering — *Aug 2020 – Apr 2024*

Research Experience

Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC) — Madison, WI
Graduate Researcher — *Aug 2024 – Present*

- Working with Dr. Jinia Roy on pulsed power supplies for high-voltage applications.
- Designed and validated PCBs for Marx Generators, integrating Ti AM263P for control and testing.

Power and Energy Group, IIT Dharwad — Dharwad, India
Undergraduate Researcher — *Dec 2022 – June 2024*

- Developed a solid-state circuit breaker (800V, 70A) for electric vehicles and DC homes using SiC devices under Dr. Satish Naik.
- Designed PCBs and conducted double pulse tests for GaN-based half-bridge inverters for MMC applications under Dr. Abhijit Kshirsagar.

Engineering Experience

Annapurna Labs (Amazon Web Services) — Austin, TX
Hardware Development Engineer Intern — *June 2025 – August 2025*

- Developed tools to enhance debugging processes for accelerator card diagnostics.
- Analyzed and repaired RMA cards, identifying and resolving hardware bugs.
- Validated high-density capacitors and supported next-generation GPU card bring-up.

Publications

1. **A. Chinnusamy**, H. Baik, and J. Roy, "High Power Density Solid State Marx Generator Based Pulsed Power Driver for Nonlinear Transmission Line," in *2025 IEEE Energy Conversion Congress & Exposition Asia (ECCE-Asia)*, Bengaluru, India, 2025, pp. 1–6, doi: 10.1109/ECCE-Asia63110.2025.11112355.

2. D. Dsa, **A. Chinnusamy**, S. N. Banavath, and E. L. Carvalho, "Implementation of Protection Features for a Modular Bidirectional Solid-State Battery Disconnector," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 12, no. 6, pp. 6001–6010, Nov. 2024.

3. **A. Chinnusamy**, D. Dsa, and S. N. Banavath, "Intelligent Battery Protection System for Electric Vehicle Applications," in *2024 IEEE 18th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG)*, Poland, June 2024, pp. 1–6.