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

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

Coursework: Introduction to Power Electronics, Electrical Machines and Power Electronics Lab, Design of Photovoltaics, Electronic Design Lab, Batteries for Electric Transportation, Introduction to Electric Vehicle Architecture, Design of Power Converters, Advanced Power Electronics and Drives

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 EVs 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-gen GPU card bring-up.

Publications

1. 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*, Nov. 2024.
2. **A. Chinnusamy**, D. Dsa, and S. N. Banavath, "Intelligent Battery Protection System for Electric Vehicle Applications," *IEEE 18th International Conference on Compatibility, Power Electronics and Power Engineering*, Poland, June 2024.

Skills

Tools:	Altium, KiCad, Matlab, Simulink, LTSpice, PLECS, Inkscape, Latex
Equipments:	Scopes, AFGs, Current Probes, Power Analyzers, LCR meters, SMD microscopes
Boards:	Ti DSPs and MSPs, Ti AM263P, Arduino, RP2040
Soldering:	Hot Air, Reflow oven
CAD Design:	SolidWorks, Fusion360