Florida State University – PhD Positions in AI for Power Electronics and Semiconductor Manufacturing

■ Enrollment:

FAMU-FSU College of Engineering, Florida, USA

Fall 2026–Spring 2028

Full Scholarship (Tuition Fee Covered + Stipend)

Supervisor: Xinze Li

General Ph.D. Admission Requirements:

- A bachelor's degree.
- A minimum 3.0 (on a 4.0 scale) GPA in all coursework attempted.
- Official English Language Proficiency results are required of all international applicants whose native language is not English: IBTOEFL - 80; OR TOEFL - 550; OR IELTS - 6.5; OR MELAB - 77; OR PTE - 55.
- GRE: For all engineering master's applicants, GRE requirement has been waived; For bachelor's applicants, you might be eligible for a GRE waiver.
- More information: https://eng.famu.fsu.edu/prospective/graduate/admissions-requirements

■ Research Overview

My vision is to build next-generation AI for next-generation power electronics technologies: an AI-native foundational intelligence layer for the adaptive, autonomous, and eventually self-sustained lifecycle management of power electronics systems. For more information of my research, please check my google scholar, website, github, and Linkedin.

- Google scholar: https://scholar.google.com/citations?user=YilrlZMAAAAJ&hl=en&oi=ao
- Website: https://xinzelee.github.io/
- Github: https://github.com/XinzeLee
- Linkedin: https://www.linkedin.com/in/xinze-li-8199561b0/

Our research will center on three AI directions: *physical AI, explainable AI, and agentic AI.*

We do not simply apply methodology — we renovate technology! You will not only master engineering — you will learn philosophy!

■ Research Directions

A. AI for Power Electronics

1. AI for power electronics simulation and modeling
2. AI for power electronics maintenance and reliability
3. AI for power electronics process automation

B. AI for Power Semiconductor Manufacturing

1. AI-based digital twins for power semiconductor fabrication
2. AI-assisted fabrication process optimization for power semiconductor

■ Candidate Profile

I am looking for PhD students who plan to enroll between Fall 2026 and Fall 2027 and have:

1. Strong passion, motivation, curiosity, and character;
2. A background in power electronics, AI, IC design, physics, mathematics, or related fields;
3. A willingness to explore bold ideas and build real technologies.

Applicants from other fields are also welcome.

■ CAPS Center Research Environment

Students will have the opportunity to work with the Center for Advanced Power Systems (CAPS) at FAMU-FSU College of Engineering, a unique research environment for advanced power systems, power electronics, real-time simulation, cyber-physical systems, superconductivity, insulation, and thermal systems. CAPS facilities include:

- State-of-the-art low-voltage and high-voltage power electronics laboratories for converter modeling, control, simulation, and prototyping;
- A 5 MW Prototype Test Facility that integrates real hardware with one of the world's largest university RTDS installations, enabling powerful Power-Hardware-in-the-Loop testing;
- Digital Real Time Simulation capabilities for realistic, low-risk testing of power and energy systems;
- Cyber-physical systems testbeds for distributed control, agent-based control, communication-aware power systems, and HIL experiments;
- High-temperature superconductivity and cryogenic dielectric laboratories;
- A High Electric Field Laboratory supporting insulation diagnostics, condition monitoring, high-voltage testing, and extreme-environment validation;
- Thermal systems laboratories for thermal measurement, evaluation, and testing of power systems.

This is an ideal environment for building AI that does not stay on paper, but interacts with real hardware, real systems, and real constraints.

■ FAMU-FSU College of Engineering

The FAMU-FSU College of Engineering is the joint college for engineering education and research at Florida A&M University and Florida State University — one college, two universities, and infinite possibilities.

According to U.S. News & World Report 2026 rankings, FSU is ranked No. 21 among public universities, and FAMU remains the highest-ranked public HBCU. The college is connected with major research facilities and centers, including the National High Magnetic Field Laboratory, Florida Center for Advanced Aero-Propulsion, Center for Advanced Power Systems, and RIDER Center.
Through this opportunity, students will be affiliated with FSU and CAPS.

■ Life in Tallahassee

Tallahassee offers a welcoming, affordable, and student-friendly living environment with the energy of a university town and the comfort of Florida life. The city has warm weather, short winters, abundant sunshine, and easy access to outdoor activities. Beautiful Gulf Coast destinations such as Bald Point State Park, Alligator Point, and St. George Island are within convenient driving distance, making beach trips, hiking, fishing, and weekend relaxation easy parts of life in North Florida.

Tallahassee is also well connected to major regional cities. Jacksonville, Orlando, Atlanta, Tampa, and New Orleans are all reachable for conferences, industry visits, and weekend trips.

■ Future Opportunities in the United States

After graduation, students trained at the intersection of AI, power electronics, and semiconductors will be positioned for strong opportunities in both industry and academia. In industry, potential career paths include power electronics, electric vehicles, renewable energy, semiconductor manufacturing, AI for engineering systems, data centers, aerospace, etc. The U.S. Bureau of Labor Statistics projects employment of electrical and electronics engineers to grow 7% from 2024 to 2034, faster than the average for all occupations. For students interested in academia, this PhD training

can also support careers as university faculty. The training will not only prepare you to publish papers, but to build the technical vision, research taste, communication ability, and leadership needed to become an independent researcher and future technology leader.

How to Apply

If you share this dream and resonate with this passion, please send your **CV, *transcript, and cover letter*** to: xinzeli831@gmail.com

Do not hesitate, and do not be shy. You will have fun — and together, we will rock the world!

About Xinze Li

My website

Xinze Li received the Ph.D. degree in electrical and electronic engineering from Nanyang Technological University, Singapore, in 2023. He joined the University of Arkansas, USA, as a postdoctoral research fellow in 2024 and a lecturer in 2025. He will join the Florida State University, FL, USA, as an Assistant Professor starting August 2026. He has interdisciplinary backgrounds of AI and power electronics: He worked as a research engineer for Rolls-Royce Singapore, and he gained AI industry experience in computer vision with Singtel (the largest telecom company in Singapore) and AI research experience in natural language processing.

His research interests center on next-generation AI for next-generation power electronics technologies, including AI for power electronics simulation and modeling, maintenance and reliability, and process automation, as well as digital twins and process optimization for power semiconductor fabrication. His work is driven by three core AI themes: physical AI, explainable AI, and agentic AI.

Xinze was the sole recipient of the 2023 NTU Collaborative Research Award. He won the Second Prize Paper Award from the IEEE Industry Applications Society and the Outstanding Presentation Award at the IEEE Applied Power Electronics Conference and Exposition 2023. He has 5 invited talks, including 2 education seminars at IEEE APEC 2025 and IEEE ECCE 2025. **Xinze is a marathon runner whose personal best for the half marathon is 1 hour and 59 minutes. He keeps pushing his limits**, improving from 2 hours and 45 minutes in 2023, to 2 hours and 30 minutes in 2024, and finally breaking the 2-hour mark in 2025. He also enjoys a wide range of outdoor activities, including hiking, kayaking, and swimming.