Academic Research | United States | University | AI for Science

Integrating AI into education and research

The University of Florida (UF) is putting AI at the heart of teaching and research with support from Lenovo, NVIDIA, AMD, and Mark III Systems—delivering AI for Science at scale.

One of the United States' top research universities, and a national leader in AI, UF conducted a record $1.34 billion in research in 2025-2026. The university's premier supercomputing cluster, HiPerGator, is integral to advancing academic and research achievements.

The latest iteration, HiPerGator 4th Gen, is based on Lenovo ThinkSystem SR635 V3 and SR675 V3 servers powered by NVIDIA GPUs and AMD EPYC™ Server CPUs. This marks the latest milestone the university's *AI Across the Curriculum* initiative, which serves as a national model for building America's AI workforce.

The solution delivers:

- 3x faster AI training performance[1]
- 15x faster AI inferencing performance[2]

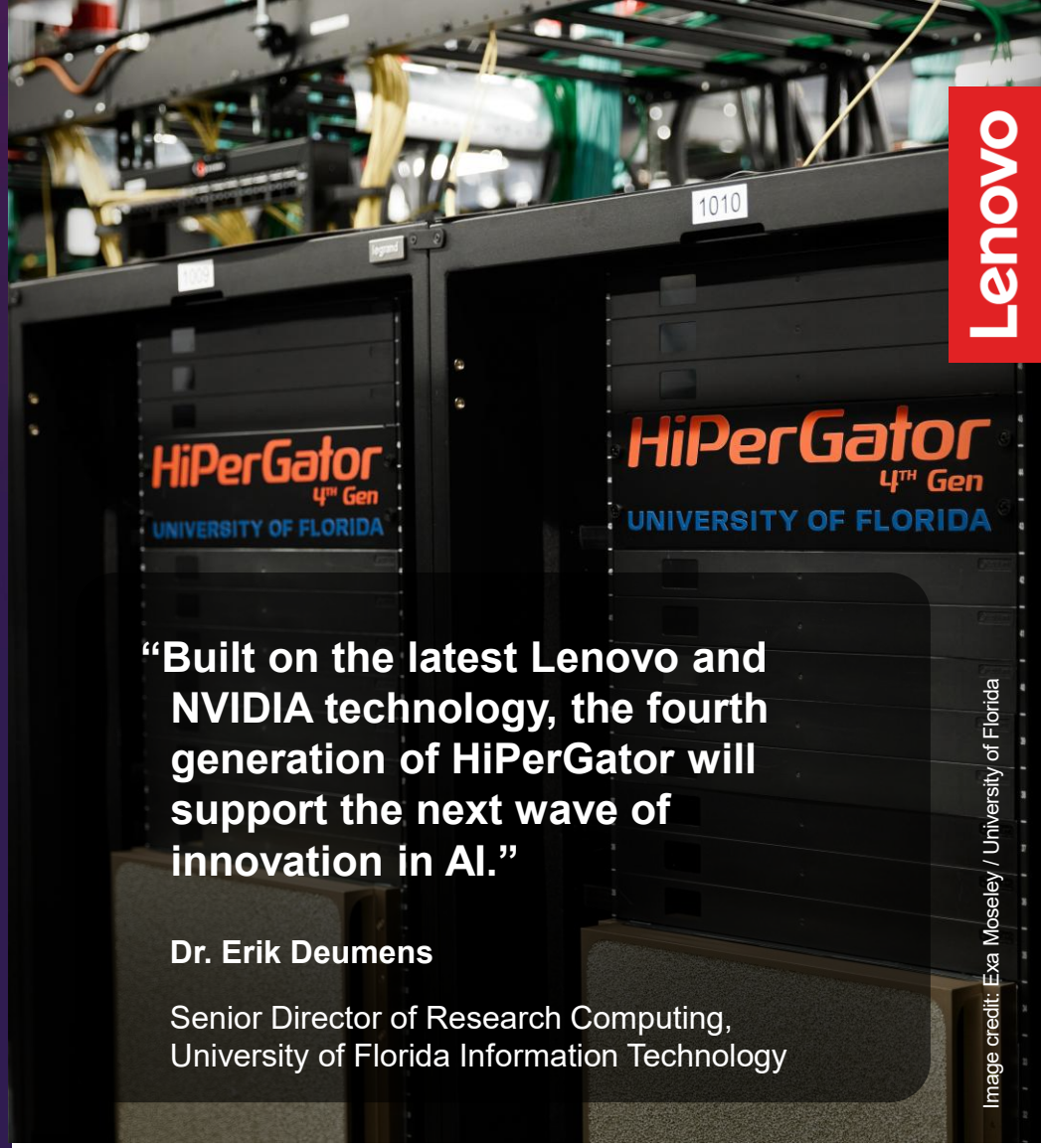
The improvements in HiPerGator's performance and throughput for both AI training and inferencing empowers more UF researchers, faculty, and students to apply AI to their work, strengthening UF's commitment to national leadership in AI.

3x
faster AI training performance

15x
faster AI inferencing performance

#1
ranked the fastest university-owned supercomputer in the U.S. by the IO500 benchmark[3]

- 33 million research requests processed in the past year
- 500+ active HiPerGator projects supported by UFIT
- 97% GPU utilization reached daily



NVIDIA AMD Mark III Systems UF UNIVERSITY of FLORIDA

[1, 2] Source: https://news.ufl.edu/2025/05/the-fourth-generation-model-of-ufs-hipergator/
[3] Source: https://news.ufl.edu/2025/12/hipergator/

The challenge

Reshaping AI education and research

Since its inception, HiPerGator has driven significant advancements in teaching and research across a wide range of disciplines—with a particularly strong reputation in AI for Science, life sciences, engineering, medicine, and environmental modeling. To bring the most cutting-edge generative AI capabilities to all users, UF set out to build the next AI-ready generation of its supercomputing cluster.

AI Across the Curriculum

- AI education is integrated in every major and every college to ensure that all students graduate with foundational AI literacy.
- UF's goal is to build a pipeline of AI-trained workers and boost America's national competitiveness.
- In research, there are opportunities in every field to use AI to help push the boundaries of human knowledge.

Need for an AI supercomputer

- A huge surge in demand for AI required more GPUs, with more than 100 new AI faculty and 230 AI and data science courses.
- Increasingly complex research workloads required more high-performance computing (HPC) capacity.

The solution

Dawn of a new era for HiPerGator

Supported by trusted partner Mark III Systems, UF Information Technology (UFIT) deployed the fourth-generation HiPerGator supercomputer based on latest-generation Lenovo, NVIDIA, and AMD technology.

Specialist AI and HPC infrastructure design, deployment, and support

- Lenovo and Mark III Systems worked closely with UFIT to design and implement a solution tailored to their AI ambitions.
- AI and HPC expertise helped UFIT to get the cluster up and running in time for the new academic year.
- Expert consulting ensured the new infrastructure integrated smoothly with existing systems, minimizing risk and downtime.
- Secure disposal of the previous cluster's racks, nodes and networking, and recovery of residual value through Lenovo Asset Recovery Services.

AI-ready platform

- HiPerGator comprises 60,000 AMD EPYC™ Server CPU cores and 1,552 NVIDIA GPUs, along with a 70 PB Lustre file system.
- UF is the only academic institution in the world to participate in the MLPerf® Training benchmarks which measure how fast systems can train AI models to a target quality metric. Across all seven benchmarks tested, HiPerGator consistently ranked among the top three performers.

Lenovo hardware, software, and services

Hardware:

- Lenovo ThinkSystem SR635 V3
- Lenovo ThinkSystem SR675 V3
- AMD EPYC™ Server CPUs
- NVIDIA L4 GPUs, NVIDIA L40 GPUs, NVIDIA RTX PRO 6000 Blackwell GPUs, NVIDIA B200 Tensor Core GPUs, and NVIDIA B300 Tensor Core GPUs
- NVIDIA Quantum-2 InfiniBand Platform

Software:

- Lustre
- Red Hat Enterprise Linux

Services:

- Lenovo Asset Recovery Services

"Hands-on technical guidance from Lenovo, NVIDIA, AMD, and Mark III Systems helped us to build a cutting-edge platform for AI education and research."

Dr. Erik Deumens

Senior Director of Research Computing, University of Florida Information Technology

60,000
AMD EPYC™
Server CPU cores

1,552
NVIDIA GPUs, including
504 NVIDIA B200
Tensor Core GPUs

70 PB
total distributed
storage

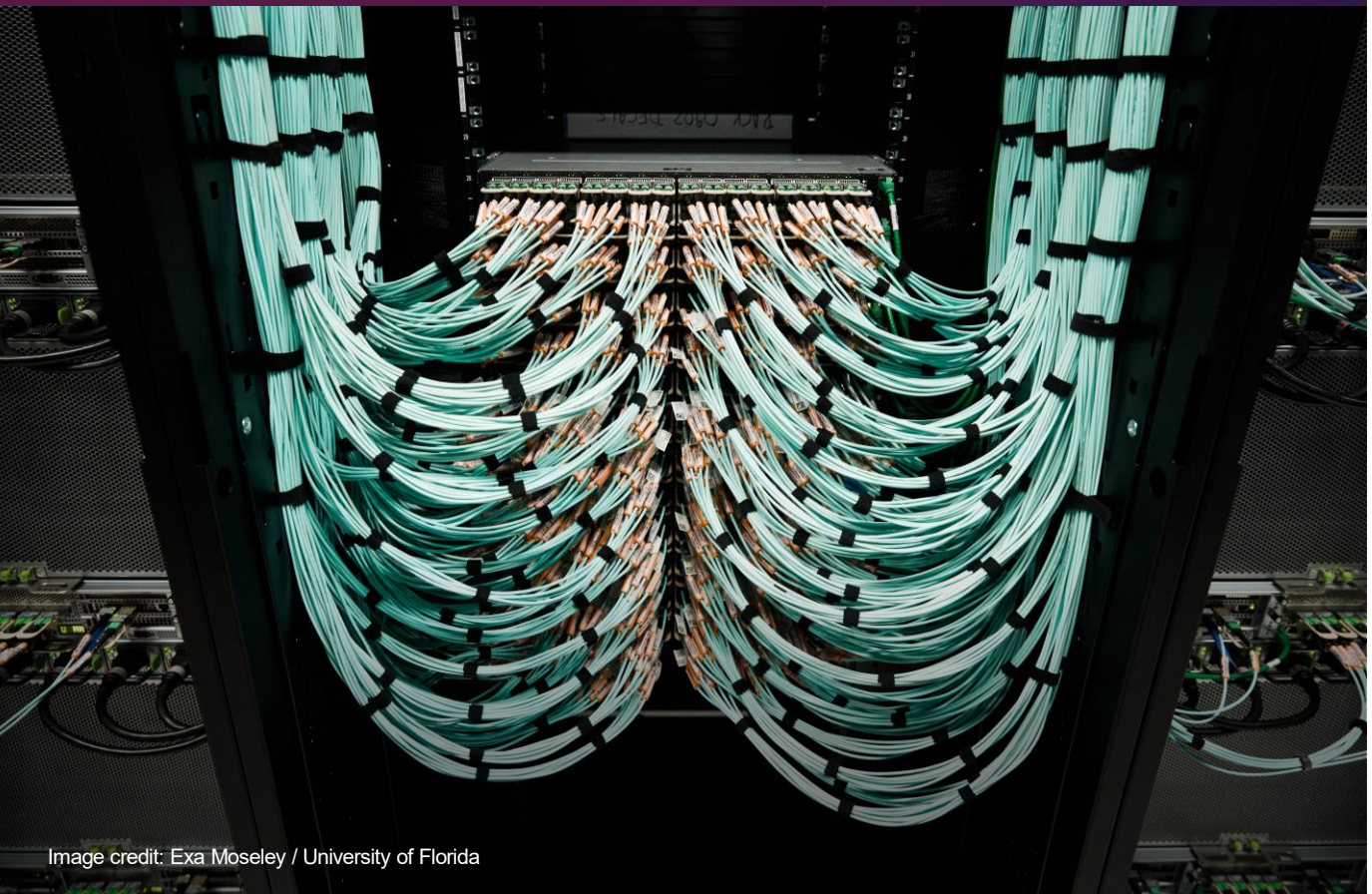


Image credit: Exa Moseley / University of Florida

The outcome

Supporting the next wave of AI innovation

HiPerGator is one of the most powerful AI supercomputers in academia in the world. It is at the heart of UF's comprehensive push to integrate AI education and research across every academic discipline.

"We're shaping how AI is used, and the enhanced capabilities of the fourth generation of HiPerGator will enable our faculty and researchers to usher in a new era of innovation," says Elias G. Eldayrie, Senior Vice President and CIO for UF.

Powering AI research with real-world impact

Powered by latest-generation NVIDIA GPUs and AMD EPYC™ Server CPUs, HiPerGator delivers 17.49 PFLOPS of compute performance[4], enabling users to run larger, more complex workloads than ever before—and get results faster. This encompasses everything from computational fluid dynamics to gene sequencing to crop disease detection to digital twins.

One research group taking advantage of this boost in compute power is a joint team from UF, Johns Hopkins University, and the University of Utah. The interdisciplinary team is developing large language models to make wildfire evacuations safer and more efficient. These AI-based models are used to simulate human behavior during evacuations—information that will help emergency managers shape more effective evacuation plans.

The impact is clear:

- **GPU-accelerated supercomputer** enables more researchers, faculty and students to apply AI to their work.
- **Increased HPC capacity** accelerates research workloads, leading to faster insights and breakthroughs.
- **Stable AI platform backed by expert support from Lenovo and Mark III Systems** keeps HiPerGator online 24/7 and supports high utilization.

[4] Source: https://top500.org/system/179940/

Why Lenovo for HPC?

Solving humanity's greatest challenges with the power of HPC

According to TOP500.org, Lenovo is the world's #1 supercomputer provider, including some of the most sophisticated supercomputers ever built.

What we offer:

- **Customer-centric approach:** Our HPC solutions are tailored to your specific business needs. We can deliver custom rack-level solutions with Lenovo Everyscale (formerly LeSI).
- **From Exascale to Everyscale™:** As a global leader in HPC, Lenovo works closely with key industry-leading partners such as NVIDIA and AMD to develop, integrate, and deploy the technologies of exascale-level computing to organizations of all sizes.
- **A sustainable computing industry leader:** Our holistic approach to energy efficiency encompasses hardware, software, and infrastructure. With our processes, you can save up to 40% energy compared to a traditional air-cooled data center.

Learn more

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> **"Agentic AI is the latest evolution in artificial intelligence, and HiPerGator will help us support students, faculty, and staff in exploring this and other new possibilities."**

Dr. Erik Deumens, Senior Director of Research Computing, University of Florida Information Technology

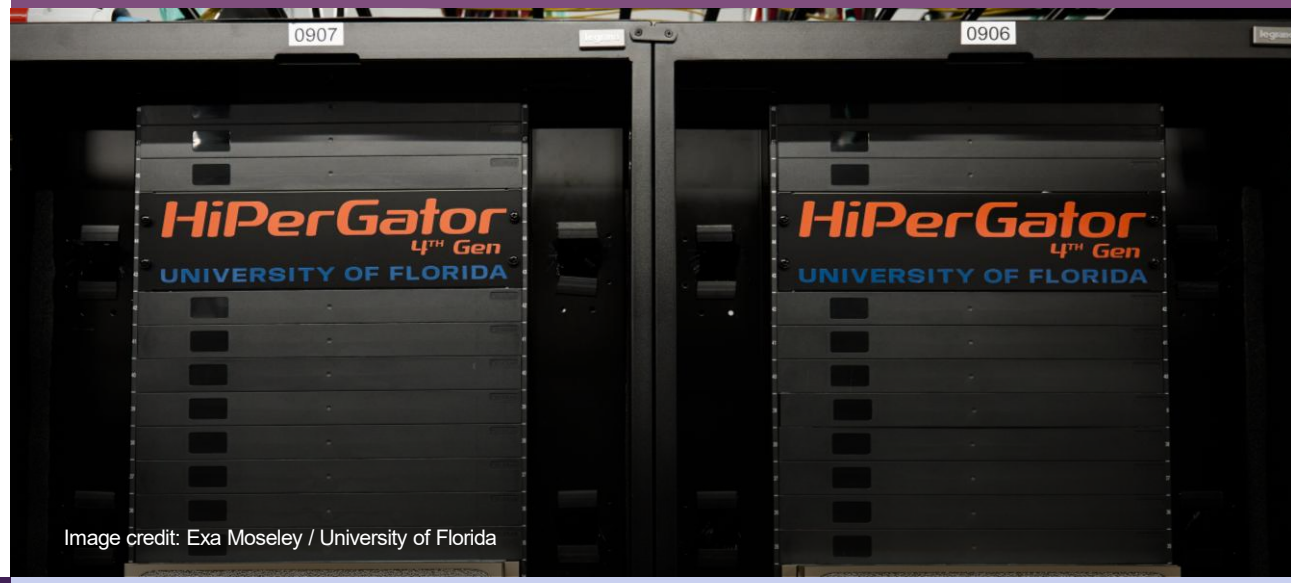

Image credit: Exa Moseley / University of Florida

Want to know more?

Get in touch with Hannah Amend (hamend@lenovo.com) or Matthew Adams (madams2@lenovo.com) to set up a chat.