State University System
Education and General
2021-2022 Legislative Budget Request
Form I
approved by Board of Trustees, July 21, 2020

University(s):	University of Florida
Request Title:	National Ranking Operating Support: Artificial Intelligence Leadership
Date Request Approved by University Board of Trustees:	July 21, 2020
Recurring Funds Requested:	$20,000,000
Non-Recurring Funds Requested:	$0
Total Funds Requested:	$20,000,000
Please check the request type below:	
Shared Services/System-Wide Request	☐
Unique Request	☐

I. **Description –** *1. Describe the service or program to be provided and how this issue aligns with the goals and objectives of the strategic priorities and the 2020 University Accountability Plan established by your institution (include whether this is a new or expanded service/program). If expanded, what has been accomplished with the current service/program? 2. Describe any projected impact on academic programs, student enrollments, and student services. University of Distinction proposals should also address the requirements outlined in the separate guidance document.*

The University of Florida recently announced it is embarking on an ambitious public-private partnership with NVIDIA, a pioneer in graphical processing units and artificial intelligence hardware, that will position both UF and the State of Florida as a global leader in the groundbreaking field of artificial intelligence (AI).

This partnership is anchored by a $50 million gift -- $25 million from UF alumnus Chris Malachowsky and $25 million in hardware, software, training and services from NVIDIA, the Silicon Valley-based technology company he cofounded. UF will invest $20 million (funded from existing university resources) to further increase the return and impact of this gift.

Together with the recurring funds contemplated by this LBR, UF will be positioned to leverage the cutting-edge technology made available through this partnership by

creating an initiative that will build momentum for transforming the future of the workforce in our state, create unprecedented access to AI training and tools for underserved communities, amplify UF's research breadth and impact to address some of the world's most formidable challenges, and serve as a catalyst to help transform the State of Florida's economy for the 21st century. This bold vision, which will revolutionize every fiber of UF's land-grant mission to provide the very best in teaching, research, and service is called the **UF AI Initiative**.

Cutting-Edge Technology
UF is the first institution of higher education in the world to receive NVIDIA's newest, fastest, and most powerful AI infrastructure, which is designed to accelerate research, including AI training, inference and data analytics. The infrastructure will build upon UF's existing HiPerGator supercomputer to create the world's fastest non-federal AI supercomputer in higher education.

The next generation HiPerGator will be operational at the beginning of 2021 and will provide faculty and students, within and beyond UF, access to the most cutting-edge tools to enhance learning and application of AI to their research and industries.

As a result of this partnership, UF will have access to the NVIDIA's AI expertise through ongoing support and collaboration across the following strategies:

- Development of new curriculum and coursework for both students and the community that will specifically address the needs of young adults and teens to encourage their interest in STEM as well as to provide them an introduction to the technology and applications of AI that would better prepare them for future educational and employment opportunities.

- Implementation of a new AI Technology Center on campus, where UF Graduate Fellows and company experts will work together to advance AI and its applications in healthcare, engineering, agriculture, science, and business.

This newly acquired technology, coupled with advanced training, will enable hundreds of UF researchers to accelerate their research and build the university's grants and contracts portfolio while preparing thousands of students to enter the workforce ready to apply a technology that is widely expected to change the way we all work and live.

Education and Workforce Development
Among the most exciting aspects of UF's AI Initiative is what it means for our students and for the economy that they will graduate into. UF intends to create an AI-enabled workforce by weaving artificial intelligence into the foundation of all instructional activities throughout every discipline across campus.

Every student will have the opportunity to acquire a full spectrum of AI learning and skills, no matter what subject they choose to major in. Students will graduate well prepared for their chosen occupation and able to assure employers that they come exceptionally prepared with a solid grounding in AI tools. Through the UF Career

Connections Center, we will bring together AI-enabled graduates with prospective employers interested in students with those capabilities further strengthening the AI talent pipeline. Recent reports from the Florida Council of 100's Project Sunrise[1] and the Florida Chamber of Commerce's Florida Workforce 2030[2] help illustrate the opportunity for our state in developing AI capacity among our graduates.

Equitable Access
This initiative extends far beyond the borders of campus. UF will work with industry leaders, the Florida College System, and the rest of the State University System to develop a strategic AI education roadmap. In tandem, UF will make available AI curriculum and the appropriate use of HiPerGator to industries and other public universities until the roadmap is fully implemented. Students, within and beyond our university campus, will benefit from UF's AI-trained and focused faculty by accessing distance education courses. There may also be opportunities to integrate more closely with Florida's K-12 system, explore other potential government collaborations, and attract additional corporate partners to further enhance the development of AI technology.

A collaboration with the Inclusive Engineering Consortium, a group of 17 Historically Black Colleges and Universities (HBCU), will focus on designing and implementing programs like Equitable AI, standards and certifications in the development of tools and solutions that are cognizant of bias, unethical practices, legal and moral issues. UF's coursework will spur Florida colleges and HBCU partners to create their own workforce development programs locally.

Enhanced Research Impact
The initiative will position UF and the state of Florida as a global leader in addressing challenges such as rising seas, aging populations, data security, personalized medicine, urban transportation and food insecurity through interdisciplinary collaboration. With the application of AI, calculations that once required years to solve will now be conquered in minutes, greatly accelerating research timelines. The partnership comes at a time when universities and supercomputers are leading the development of vaccines and other potential treatments for COVID-19.

Economic Development
An indirect result of this initiative includes a multitude of economic benefits that will serve to bolster and support the diversification of the state's primary economic drivers. We anticipate creating new opportunities for industry to work jointly with world-class UF faculty on key areas of opportunity to further enhance and develop the utilization of AI. This initiative will establish a world-class center of AI talent in Florida that will address the need for an AI ready workforce. A robust AI talent pipeline will attract innovators and investors to our state, creating jobs and diversifying Florida's economy. Through this initiative, the state of Florida will be better able to realize its full potential in AI-enabled job creation and problem solving.

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[1] Florida Project Sunrise report can be found online at https://www.fc100.org/
[2] Florida Workforce 2030 report can be found online at http://www.flchamber.com/wp-content/uploads/2020/02/Florida-Workforce-2030-Report_FINAL_web.pdf

The Request

With the support of Governor DeSantis, the Legislature and Florida Board of Governors, the University of Florida, like the entire State University System, has made incredible gains in recent years that have advanced the status and well-being of our state and nation.

Even when challenged by the COVID-19 pandemic, UF has maintained focus on its top academic priorities of keeping students on track to a timely graduation and delivering on impactful research and commercialization outcomes within a safe environment. UF's 2020-2021 strategic priorities from our 2020 Accountability Plan inform every investment we make:

> *The University of Florida's goal is to earn sustained recognition as one of the nation's Top 5 public universities. UF has engaged several strategies to realize that goal.*
>
> *The first [strategy] is to maximize achievement as reflected in several important sets of metrics, including the Preeminence metrics, the Performance Funding metrics, and the U.S. News & World Report metrics. Since there is some tension among opposing metrics, this requires careful analysis and choices.*
>
> *The second strategy is to continue to build UF's faculty to serve several purposes: to better serve the students, state and nation; to build UF's reputation; and to build the grants and contracts portfolio to $1B annually. To help achieve these purposes, UF will continue to emphasize its moonshot program, wherein faculty engage with challenging problems of great significance to society. Not only are these projects inspiring, they spur faculty to seek additional external resources to support them, and they bring national attention to the remarkable work being done at UF.*
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> *The third strategy is to implement a pan-university initiative in artificial intelligence (and associated areas like data science and the internet of things). AI is rapidly becoming a key pillar of the 21st century American economy that will revolutionize science, medicine, business, and a host of other fields. In partnership with a major American technology company, UF is ratcheting up its research enterprise in AI and is developing a new model for AI workforce development that many in national circles believe is sorely needed. In order to do this, UF is adopting a philosophy of "AI across the curriculum" to ensure that any student who wishes to graduate with the tools of AI is able to do so.*

While our top priority will always be improving and maximizing our achievement, student success is at the heart of this priority (Strategic Priority No. 1). Maximizing achievement means delivering a world-class education, supporting students to a timely graduation, preparing graduates to successfully compete in a transforming job

market and equipping students, faculty, graduates and the communities we serve to solve our nation's greatest challenges.

To do this, UF will continue to diversify UF's faculty to serve several purposes (Strategic Priority No. 2) but always to serve the students.

This Legislative Budget Request (LBR) for $20,000,000 in recurring state funds will support the hiring of an additional 100 outstanding, nationally competitive faculty members in AI and at least 20 academic support staff in AI, making the implementation of the initiative possible. These strategic hires, who will likely be connected with a new School of Artificial Intelligence and Information Technology Center, will serve the entire campus and UF's educational partners.

If fully funded, UF will be among the first universities in the nation to integrate AI across comprehensive disciplines and make it a ubiquitous part of its academic enterprise, uniquely characterizing and distinguishing the university among its top peers in the country (Strategic Priority No. 3).

This legislative budget request addresses the Board of Governor's Goals related to: 1) Teaching and Learning; 2) Scholarship, Research, Innovation; and 3) Community and Business Engagement. It also addresses Goal 2, 3, 4, 5 and 7 from the "Decade Ahead: UF Goals and Plan Forward."

II.   **Return on Investment –** *Describe the outcome(s) anticipated, dashboard indicator(s) to be improved, or return on investment. <u>Be specific.</u> For example, if this issue focuses on improving retention rates, indicate the current retention rate and the expected increase in the retention rate. Similarly, if the issue focuses on expanding access to academic programs or student services, indicate the current and expected outcomes. University of Distinction proposals should also address the requirements outlined in the separate guidance document.*

UF understands the difficult budget decisions that will face the Florida Legislature and Governor DeSantis. But we believe that this AI Initiative will be worth the investment because of the way it can transform Florida's economic and innovation stature and deliver compelling returns for our future.

Integrated AI Curriculum, Equitable Access Across the State
As a comprehensive institution, UF has a goal of bringing students and faculty from across campus—and across the state—together to work. The university will offer certificate and degree programs in AI and data science, with curriculum modules for specific technical and industry-focused domains, expanding student access to more programs and opportunities.

UF will develop curricula across all disciplines ranging from the functional basics of AI and machine learning to a complete and deep understanding of the technology and

its applications, so students can engage at whatever level they find appropriate. Curriculum will be delivered at scale through a variety of modalities, including on-campus for residential students, in 6- and 8-week summer "bootcamps", and through UF's well developed online education system.

Beginning in Fall of 2020, UF will offer a bachelor's degree in Data Science, offered jointly by Statistics, Mathematics, and Computer Science. We also will offer an AI Certificate Program for any UF student. The three-course certificate will include a course in Ethics (PHI3681: Ethics, Data and Technology), Fundamentals of AI (ENG 3XXX: Fundamentals of Artificial Intelligence), and a course that is domain-specific.

So that no community is left behind, UF plans to promote wide accessibility of our new computing capabilities to work with other institutions in developing a pipeline of talent able to harness the power of AI. Among these efforts are partnerships with state and regional universities and K-12 strategies led by the Herbert Wertheim College of Engineering (HWCOE) Innovation Station and faculty member Dr. Christina Gardner-McLune. Collaborations with Historically Black Colleges and Universities (HBCUs) and Hispanic Serving Institutions (HSIs), as well as with K-12 programs will focus on equitable access for everyone.

UF's program in Equitable AI, under the leadership of Dr. Juan Gilbert, faculty chair of the Department of Computer & Information Science & Engineering, is convening faculty members from across campus, including the Colleges of Journalism and Communications, Agriculture & Life Sciences, Pharmacy and Liberal Arts & Sciences, to focus on creating standards and certifications in the development of tools and solutions that are cognizant of bias, unethical practice and legal and moral issues. NVIDIA will contribute to the effort with Mr. Malachowsky as one of their initial representatives.

Led by HWCOE faculty member Dr. Damon Woodard, founding member of the Center of Advanced Studies in Identity Science, which is the Office of the Director of National Intelligence's first science and technology-based Center of Academic Excellence, UF will also partner with the Inclusive Engineering Consortium, made up of 15 HBCUs and 2 HSIs, whose students will work with members to conduct research and potential recruitment to UF graduate programs. UF will also partner with these institutions to provide training in AI.

Outcomes Anticipated:
- Integration of AI throughout the UF curriculum
- New datasets will enable UF administrators to enhance and understand early warning and develop smart systems to facilitate greater student success experiences, and retention
- Expanded research opportunities and funding
- Strengthened talent pipeline of students capable of working in AI-related fields who are already familiar with industry needs and practices
- Ability to support the increasing number of jobs in the field of AI and profitability of this Florida industry

- Greater ability to partner with the AI enabled workforce to propel Florida's graduates and industries forward
- Students earning a Certificate in AI
- A more diversified AI workforce as other colleges and universities train their students using UF's HiPerGator
- In addition, we expect that developing a world-class Florida center of AI talent will attract innovators and investors in this growing industry to create jobs and diversify our state's economy

Performance and Preeminence Indicators to be improved:
- Percent of Bachelor's Graduates Enrolled or Employed ($25,000+)
- Median Wages of Bachelor's Graduates Employed Full-time
- Percentage of Bachelor's Degrees Awarded within Programs of Strategic Emphasis
- Public University National Ranking
- Science & Engineering Research Expenditures
- Non-Medical Science & Engineering Research Expenditures

Return on Investment:
- The state's $20M recurring investment contemplated by this LBR will be leveraged with $50M in private support from NVIDIA as well as $20M UF funds for a total of $70M in the first year; an immediate return of 3.5 to 1
- Development of a statewide strategic AI education roadmap
- Increased talent pipeline for state with a 21st century workforce
- UF commitment to the future of AI will raise the university's national profile and position as a global leader in addressing some of society's most pressing challenges and opportunities
- Funding this LBR will also generate indirect economic benefits that are more difficult to quantify, but equally meaningful. Examples include opportunities for industry to work jointly with world-class faculty on key areas of opportunity and threat

III.   **Facilities** (*If this issue requires an expansion or construction of a facility, please complete the following table.*):

	Facility Project Title	**Fiscal Year**	**Amount Requested**	**Priority Number**
1.	None			
2.				

2021-2022 Legislative Budget Request
Education and General
Position and Fiscal Summary
Operating Budget Form II
(to be completed for each issue)
approved by Board of Trustees, July 21, 2020

University: **University of Florida**
Issue Title: **National Ranking Operating Support:**
                            Artificial Intelligence Leadership

	RECURRING	NON-RECURRING	TOTAL
Positions			
Faculty	100.00	0.00	100.00
Other (A&P/USPS)	20.00	0.00	20.00
	-------------	-------------	-------------
Total	120.00	0.00	120.00
	=========	=========	=========
Salaries and Benefits	$20,000,000	$0	$20,000,000
Other Personal Services	$0	$0	$0
Expenses	$0	$0	$0
Operating Capital Outlay	$0	$0	$0
Electronic Data Processing	$0	$0	$0
Financial Aid	$0	$0	$0
Special Category (Specific)	$0	$0	$0
	$0	$0	$0
	$0	$0	$0
	$0	$0	$0
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Total All Categories	$20,000,000	$0	$20,000,000
	=========	=========	=========