

## Request for Technology Fee Funds: FY19

**NOTE: A separate request should be made for each initiative.**

I. Department Number/Department Name:

360	College of Computing, ECE, OIT-PACE
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Title of Request (please be brief):

GPU Computing Expansion fore PACE-ICE
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Amount of Request (formula from detailed budget below):

\$147,782
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Type of Proposal: Atlanta or Dist Lrng/Non-Atl

Atlanta
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Was this project request funded in FY18?

No	(Yes or No)
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Are there installation/renovation costs associated with this request?

No	(Yes or No)
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If "Yes" then indicate the source of approved funding:

*(Note: Tech Fees are not allowed for installation/renovation)*

**Executive Summary of Request (100 words or less):**

To compliment the existing PACE-ICE cluster being piloted this semester by CS, CSE, and ECE, we propose to purchase GPU nodes to increase the capacity of the cluster in addition to purchasing storage nodes to support this expansion and augment the existing resource.

Specific class and/or lab initiative(s) if applicable:

(see Part III of narrative and continuation section)
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Contact person for this request (incl. phone #):

Mehmet Belgin (PACE 5-0665), Mercer (5-2518), Leonard
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Indicate priority per department if applicable:

Number	of
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Indicate priority per college or unit:

Number	2	of	7
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II. Impact on Students - Provide course title, course number, and anticipated enrollments:

Titles/Numbers of Course(s)

(see Part III of narrative and continuation section)
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Anticipated Enrollments

Graduate:	1,057	(per	yr	) sem or yr
Undergraduate:	841	(per	yr	) sem or yr
Total:	1,898			

**NOTE:** Other impacts on students should be described in narrative.

III. Narrative - Provide narrative justification for your intended use of the technology fee funds. Include narrative on how the education or research of the students will be enhanced. Also include how the request aligns with the Strategic Plan of Georgia Tech. Continue in the block below if necessary.

Beginning in 2016, the College of Computing and OIT-PACE joined forces to build an advanced shared educational computation cluster - PACE-ICE (Instructional Computing Environment) - to address the growing number of HPC resources requested by classes in the College of Computing and the School of ECE. Leveraging the PACE team's expertise in delivering High Performance Computing (HPC) resources, along with investments from OIT, College of Computing, and Tech Fee grants, we have created a campus resource that serves as a model that other departments can join with their own educational funds. PACE-ICE is currently being piloted by CS, CSE, and ECE, and we expect the cluster to go into production Summer 2018.

Georgia Tech's strategic plan sets goals to be among the most highly-respected technology-focused learning institutions in the world and to sustain and enhance excellence in scholarship and research. With the shifting trends in industry and research, an understanding of GPU programming for AI deep learning and other "embarrassingly" parallel problems is becoming increasingly important for our outgoing graduates. Couple that with the Institute's initiative to increase graduate admissions, and we find that our current resources need to be expanded to maintain pace with the demand for courses teaching these skills. We propose to increase

IV. Detailed Budget - Requested Items by Category List separately any equipment, software, and other allowable expenses (see Tech Fee Guidelines). There is a formula in the "total column" that multiplies the number of items times the unit price. You may enter a figure into the total column if the unit pricing is not applicable. If you need additional rows, contact the Budget Office to receive a modified form.

**Supporting documentation is required-** Include price justification in some form, such as quotations, published price lists, etc. as a separate PDF attachment. All supporting information should be in a single PDF.

Proposed Number of Items	Estimated Price per Unit	Total (\$)
GPU Compute Nodes	8	\$11,629
Storage Nodes	4	\$13,043
Infiniband Cables	12	\$215
		\$0
		\$0
<b>Total</b> (linked to the total amount of request line above)		<b>\$147,782</b>



**III. Continuation of narrative justification, if necessary**

of the existing PACE-ICE cluster by adding 8 new GPU nodes, as well as the storage nodes needed to support both this expansion and the current PACE-ICE cluster. The number of servers is based on feedback from College of Computing faculty, but even partial funding of this request would be useful as we seek to explore the opportunities of this shared campus resource.

The classes expected to use the proposed cluster improvements include CSE6140, CSE6220, CSE6221, CSE6230, CSE6236, CSE6730, CSE6740, CS1372, CS4140/6140, CS4225, CS4245, CS4335, CS7641, CS4290, CS6220, CS6290, CS8803, CS4225, CS6210, ECE2035, ECE2036, ECE3020, ECE4100/6100, ECE8893, ECE6101, ECE6110, and MATH4777, as well as others from Chemistry, Physics, ME, CEE/Biology, Biology, Nuclear and Radiological Engineering.