Request for Technology Fee Funds: FY21

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

I.

Department Number/Department Name:	**360** **College of Computing**
Title of Request ***(please be brief):***	**Information Security Fuzzing Cluster**
Amount of Request *(formula from detailed budget below):*	**$10,652**
Type of Proposal: Atlanta or Dist Lrng/Non-Atl	**Atlanta**
Is this request similar to one funded in FY19 or FY20?	**No** **(Yes or No)**
Are there installation/renovation costs associated with this request?	**No** **(Yes or No)**
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):

CS6265 introduced a new chapter about learning "fuzzing," which is a very practical approach for testing software. We are planning to reproduce the well-known Google's cluster fuzzing system in a smaller scale, and let students learn how the system works by building them

Specific class and/or lab initiative(s) if applicable:	**CS6265 (Information Security Lab)**
Contact person for this request (incl. phone #):	**Jinho Jung (N/A) and Seulbae Kim (N/A)**
Responsible faculty for this request (incl. phone #)	**Taesoo Kim (404-385-3924)**
Indicate priority per department if applicable:	**Number** ____ **of** ____
Indicate priority per college or unit:	**Number** **6** **of** **9**

II. Impact on Students - Provide course title, course number, and anticipated enrollments:

Titles/Numbers of Course(s): **Information Security Lab / CS6265**

Anticipated Enrollments

Graduate:	*250*	*(per* yr) sem or yr
Undergraduate:	30	(per yr) sem or yr
Total:	280	

The estimated percent use of the resources in the item by:

Students	50%
Faculty	50%
Other	0%
Total:	100%

Brief explanation of how estimate was achieved.

During the class, students will use the fuzzing cluster for solving the given challenges. When the machines are available (i.e., idle), faculty members will run fuzz testing.

NOTE: Other impacts on students should be described in narrative to include benefits to the students affected.

III. 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. Software or data license proposals should indicate how many years the item has been funded through student tech fees in narrative.*

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 ($)
CPU	**10**	**$499**	**$4,990**
Mother Board	**10**	**$259**	**$2,590**
Memory and HDD	**10**	**$183**	**$1,832**
GPU	**10**	**$45**	**$450**
Power and case	**10**	**$79**	**$790**
Total *(linked to the total amount of request line above)*			**$10,652**

Please return form via e-mail in Excel format to: techfees@business.gatech.edu. Supporting information only in a PDF file.

IV. 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. To include curricular, co-curricular, and extracurricular benefits expected to accrue to students through provision of this resource, including students outside the unit. Briefly state how information regarding similar technology use elsewhere on campus to benefit from lessons learned, to standardize, or differentiate, and to avoid duplication. Also include how the request aligns with the Strategic Plan of Georgia Tech.

Cyber security provides an essential protection for governments, companies, and schools against devastating cyber-attacks that have recently emerged. In response to these threats, CS6265 (Information Security Lab) has been offered to the students to provide them with opportunities to gain experience in a type of hacking challenges, called Capture the Flag (CTF), through a rigorous training. Throughout the class, students learn advanced techniques for generating exploits and patching the identified vulnerabilities in software systems, by stepping through an intense, hands-on security laboratory.

Recently, CS6265 introduced a new chapter about “fuzzing,” which is a very practical approach for testing software. As it automatically generates test cases that are likely to trigger vulnerabilities in any applications, fuzzing has earned a lot of attention lately from the security community, with a lot of vulnerabilities found. Through this new chapter regarding fuzzing, students will experience a cutting-edge method that is highly required in practice.

In particular, clustered fuzzing is one of the applications of fuzzing, which utilizes multiple machines in parallel for higher efficiency. In our class, we are planning to reproduce the Google’s cluster fuzzing system in a smaller scale, and let students learn how the system works by building them. Here, having actual machines is imperative in providing practical learning opportunities without having to rely on Google’s service, because 1) learning how to build the entire system in cost-effective ways, 2) learning how to utilize the fuzzing technique on top of the built system and observing how the clustered fuzzing discovers actual bug, and 3) observing and tackling potential problems under the setting where the fuzzing system runs across multiple machines in parallel, are only available by having access to the actual machines.

This objective well aligns with the strategic plan of Georgia Tech, because students will become proficient at one of the most appreciated and crucial techniques to cope with growing cyber threats. This ensures that Georgia Tech students cultivate advanced skills that address one of the biggest challenges the world is facing today. In addition, this unique course setting is in line with the strategic goal of being among the most highly respected technology focused learning institutions in the world.

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