To: Faculty Senate

From: Academic Computing and Infrastructure Committee (ACIC)

Date: May 22, 2023

Subject: ACIC Annual Report

Per the Constitution of the Portland State University Faculty, the charge of the Academic Computing and Infrastructure Committee is as follows:

The committee shall:

1. Serve as an interface between OIT, OAI and the Portland State Faculty, ensuring that Faculty are informed, heard, and involved in IT decisions for the University;
2. Make recommendations on the principles and policies guiding IT choices and goals for the University;
3. Conduct periodic surveys of the Faculty to determine their concerns and feedback;
4. Act in liaison with appropriate committees;
5. Report to the Faculty Senate at least once each year.

ACIC is a university-wide committee appointed, as follows, by the Committee on Committees:

Co-Chairs: Scott Robison (AO) & Steven Thorne (CLAS-AL, (WLL))
Butenhoff, Christopher (CLAS-SCI (PH))
Duh, Geoffrey CLAS-SS (GEOG)
Feng, Wu-chang (MCECS)
Finn, Tim (SB)
Joshi, Riju (CUPA, (EC))
Miller, Caroline (COTA)
Pendell, Kimberly (LIB)
Robison, Scott (AO)
Rodriguez, Eric (OI)
Santelmann, Lynn (CLAS-AL (LING))
Swobodzinski, Martin (CLAS-SS (GEOG))
Thorne, Steven (CLAS-AL (WLL))
VanOverhill, Tyson (SSW)
Webb, Rachel (CLAS-SCI (MTH))

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Report

ACIC is a recently created constitutional committee (Spring, 2021). ACIC began its work in the Spring term of 2022 and focused on comprehensive discussions of technology-related issues on campus, establishing ACIC leadership, and setting tasks for the following academic year.

During the 2022-2023 academic year, ACIC met once a month. Agendas and meeting notes were shared via Google Docs. Key events, topics, and discussions include the following:

1. **PULSE Survey:** ACIC's charge includes conducting periodic (annual) surveys of the Faculty to determine their concerns and to garner feedback on perceived needs, problems, and solutions.

The newly initiated PULSE Survey, sent out at the end of the Fall 2022 term, aimed to gather feedback from instructional and research faculty on campus. The open-ended question presented in the PULSE Survey was: **What existing academic technology or computing issue do you think should be at the top of the ACIC's priority list of things to address in the near future?**

The Survey had a low response rate of approximately 5%. As a result, the survey results may not provide a comprehensive representation of technology-related issues across the campus. Nonetheless, the survey serves as an empirical starting point for understanding and addressing technology concerns at PSU. Upon analyzing the survey data, three key items emerged as the top priorities. Firstly, there is a need for adequate classroom technology that can support both in-person and remote (e.g., Attend Anywhere) teaching. This highlights the importance of providing suitable technological resources to facilitate effective teaching and learning in various instructional settings. Secondly, there was voiced concern regarding faculty computer refresh rates and ensuring adjunct faculty access to necessary technology. This recognizes the significance of providing faculty members with up-to-date equipment and tools to support their instructional and research responsibilities, along with ensuring equitable access for adjunct faculty. Regarding the issue of computer refresh, since numerous respondents inquired about this, we suggest that Colleges and departments remind or provide faculty with the specifics of the computer refresh schedule, which varies across units. Third, research computing resources were identified as another crucial area of concern. This underscores the importance of providing robust computing infrastructure and resources to support research activities and enhance scholarly pursuits on campus. By addressing these key areas highlighted by the PULSE Survey, PSU can work towards resolving technology-related challenges and improving the overall technological landscape on campus. The full results of the ACIC PULSE Survey, organized by frequency of topics/themes mentioned, is presented in Appendix 1.

2. **Meetings with external experts and campus technology specialists:** ACIC invited guests to attend meetings to inform the committee about various technology-related projects.

Eleanor Hart, Associate Director of Academic Technology and Inclusive Design at Portland State University, November 14, 2022

Focus: The Classroom Technology Pilot project, an OIT effort to test 4 distinctive configurations of Attend Anywhere technology classrooms located in the Broadway Building. The goal is to empirically test different configurations of technology in order to define a new "mid-tier" classroom AV standard that can be efficiently and economically scaled across campus and would add functionality that is currently missing in Zoom classrooms. ACIC was particularly impressed by the methodology used to explore the different mixes of technology in each of the 4 classrooms, which includes instructor and student feedback and surveys. The goal is to produce an affordable technology standard that will enhance the teaching and learning experience for Attend Anywhere courses. ACIC members toured the Classroom Technology Project spaces (April 28, 2023) and were impressed with the improved functionality. Testing and assessment will continue through the Spring 2023 term and planning for scaling mid-tier options will continue through Summer and Fall, 2023.

Jerrod Thomas, Senior Director, OIT, November 14, 2022

Focus: Review of OIT services, which engages 90-120 projects per year. A few key developments are described below.

Several initiatives have been undertaken to promote inclusive language and enhance campus technologies. One such effort involves the technical implementation of pronoun collection and usage options across various campus platforms, including Canvas and Banweb. These updates have been made to ensure that language used in these technologies is both inclusive and accessible, following the Educause model. Additionally, the Office of Information Technology (OIT) has been working on remediation efforts to address non-inclusive language across its systems.

Addition updates from OIT: (1) Significant improvements are being made to the Vernier Science Center (SB1) Building through a building upgrade project. This initiative aims to enhance the overall functionality and facilities of the building, providing a better experience for students and faculty.(2) In order to assist students with their questions and concerns, the university is planning to implement the Ivy.IA Chatbot, named Kit. This chatbot serves as a helpful resource, providing guidance and support through a gender-neutral interface. (3) There have been discussions regarding the prioritization of IT project requests. This process involves evaluating the importance and feasibility of each project, ensuring that resources are allocated appropriately and efficiently.

Ryan Bass, CIO of OIT, March 13, 2023

Focus: Campus technology budget overview and impacts on service. Specific discussion of the following issues:

Ongoing changes in staffing and budget within the Office of Information Technology (OIT) have necessitated a reevaluation of service and organizational strategies to ensure efficiency despite

constraints. The primary focus is on accomplishing more with fewer resources. One key aspect is maintaining priority access to research computing, recognizing its significance for academic and scientific pursuits. Additionally, OIT aims to develop a customer relation and management system (CRM) strategy that is adaptable and specifically geared towards enhancing student success. Operational excellence is being pursued in various areas. This includes migrating Banweb to a new architecture to improve its functionality, addressing student needs by enhancing the features of MyPSU, and expanding outdoor WiFi coverage in locations such as the Park Blocks and elsewhere on campus. Additionally, OIT is providing information security training, titled "2022 Kevin Mitnick Security Awareness Training," to faculty, staff, and students through online training programs. These measures aim to strengthen overall cybersecurity and data protection on campus.

3. **Calls for action**: Numerous technology-related issues and challenges were discussed during ACIC's monthly meetings. ACIC also benefited from members of the campus community who shared ideas and concerns and we would specifically mention Prof. Jill Emery (Library) for her contributions regarding AI and encouragement for additional identity security safeguards on campus.

3.1 ChatGPT and other Large Language Model AIs (LLM AIs): The arrival of ChatGPT and other Large Language Model AIs in late 2022 have had a tremendous impact on higher education. Here we describe a few of the positive and negative/challenging issues associated with these tools.

Potential positive impacts of LLM AIs: The advent of large language model AIs has revolutionized higher education in profound ways. These intelligent systems make available powerful tools for both educators and students, transforming the learning landscape. With their vast knowledge base and natural language processing capabilities, LLM AI models have empowered students to access information and engage in dynamic and personalized learning experiences. AI-powered virtual tutors and adaptive learning platforms provide personalized feedback and guidance tailored to individual students' needs, fostering an effective and efficient learning process. Additionally, large language models facilitate collaboration and knowledge-sharing among students, as they can assist in real-time discussions, answer questions, and offer insights. LLM AIs can assist with computer coding and math-related questions and problem sets, including the capacity to explain problems and provide step-by-step guidance. For academic writing, LLM IAs can be used to assist with editing and stylistic corrections and can offer feedback and pedagogical explanations relating to academic language use, which can support students struggling with academic varieties of written language and students for whom English is their second (or 3rd, 4th, etc.) language. As a result, LLM AIs have the potential to support students and to create a more inclusive, accessible, and responsive learning environment that is adaptive to the needs of diverse learners.

Problems and challenges of LLM IAs in higher education: While large language model AIs like ChatGPT offer numerous benefits in higher education, they also present many challenges and concerns. One significant issue is the potential for cheating and academic dishonesty. Students may misuse these AI models to generate plagiarized content or obtain answers without truly understanding the subject matter. This can undermine the integrity of assessments and devalue

the educational process. Educators need to address this challenge by fostering in students a culture of academic honesty and a deep desire to learn, and not simply to complete assignments as easily as possible, which mitigates learning.

Another problem is the risk of overreliance on AI models. Students may become excessively dependent on these systems for their learning, relying solely on pre-generated answers rather than engaging in critical thinking and active problem-solving. This can hinder the development of important skills, such as analytical thinking and creativity. To mitigate this issue, educators should encourage students to use AI models as tools to support their learning rather than as substitutes for their own cognitive abilities.

Additionally, there are concerns regarding the biases and errors present in AI models, including "hallucinations", defined as erroneous facts and argumentation created by AI tools. If the training data used to develop these models contains biases, they may inadvertently perpetuate and amplify those biases when providing responses. This can have implications for the objectivity and fairness of educational content. It is crucial for developers and educators to be mindful of these biases and work towards improving the fairness and inclusivity of AI models. Relatedly, there is the challenge of ensuring digital literacy and critical thinking skills in the face of AI-generated content. Students need to evaluate and validate the information provided by AI models and to understand their limitations and potential inaccuracies. Educators play a crucial role in teaching students how to effectively navigate and assess the information generated by AI models within an educational context.

In summation, while large language model AIs have transformative potential in higher education, it is essential to address these aforementioned challenges proactively to ensure their responsible and effective use to enhance learning outcomes. In her OAI presentation on LLM AIs in higher education, on Friday, May 12th, 2023, Cynthia Alby emphasized this very point, that since ChatGPT (and related tools) can so easily reduce the cognitive load of many tasks, and hence reduce potential learning outcomes, we need to foster a culture shift in higher education that emphasizes and supports a desire to learn *with* these powerful new tools, and not to use them to complete assignments and learning activities with minimal effort. This is a tall order but one that must be central to our concerns as educators moving forward.

Possible action for Faculty Senate: Should we create an Ad Hoc committee to address LLM AIs in higher education? OAI and OIT could help inform this process, but these units are not positioned to create academic integrity policies. New pedagogical approaches to the developmentally effective use of LLM AIs is needed, as is training for faculty across campus. This could be an issue that Faculty Senate would want to address in the coming year (AY 2023-2024).

3.2 Proctoring systems and academic integrity

The current state of online proctoring is one of continued growth and evolution. With the increasing demand for remote and online learning, some departments have turned to online proctoring as a solution for maintaining academic integrity in high stakes online assessments. However, the use of online proctoring has also raised concerns about student privacy, data security, and the impact on student learning. Going forward, it will be important to continue to

evaluate and adjust our approach to online proctoring based on student feedback and changing circumstances, while also ensuring that their use of proctoring systems aligns with ethical and legal standards. There are many online proprietary proctoring tools available for asynchronous online assessments in Canvas. These applications require either an institutional license fee or a student fee. Currently there is no campus wide site license, but several departments have their own student fee structure set up for department license or individual student use. Should PSU have a University site license? We recommend clear guidelines and best practices for both students and faculty using proctoring systems.

Portland Community College (PCC) has started using Zoom focus to proctor their synchronous online exams. The Zoom focus setting is a Zoom feature that allows the host to highlight a specific area of their screen to all meeting participants. When the focus setting is enabled, Zoom will automatically resize the shared content to fit the entire screen, while dimming out the rest of the screen content. PCC has developed a comprehensive set of guidelines, videos, and procedures for remote proctoring for both students and faculty. When proctoring an online exam, proctors share the exam window with the student and then use the Zoom focus feature to restrict the student's view of the screen to only the exam window. Then all students share their screen at once, turn their microphones on, turn their speakers off. Communication is done through the chat. To ensure that students are not able to bypass the Zoom focus feature, PCC requires that students use a secondary device, such as a removable computer camera, smartphone, or tablet, to capture and share a video of their work space. We list a few popular proprietary proctoring software systems that integrate with Canvas:

- Proctorio is a fully automated online proctoring tool that uses AI to detect and flag suspicious behavior during exams. It integrates seamlessly with Canvas and offers a range of customizable settings, including identity verification, browser lockdown, and webcam monitoring. https://proctorio.com/products/online-proctoring
- ProctorU is an online proctoring service that integrates with Canvas and provides live proctoring services using trained proctors. It includes customizable settings, such as identity verification, lockdown browser, and webcam monitoring, and offers a range of scheduling options for exams. https://www.meazurelearning.com/exam-technology/proctoru-online-proctoring
- Respondus Monitor is a fully automated online proctoring tool that integrates with Canvas and uses webcam and microphone monitoring to deter cheating during exams. It also includes a range of customizable settings, such as identity verification, lockdown browser, and live proctoring. https://web.respondus.com/he/monitor/pricing/
- ExamSoft is a secure exam platform that integrates with Canvas and offers online proctoring capabilities. It includes a range of customizable features, including randomized questions and answer options, timer controls, and the ability to capture screenshots of test takers' screens during exams. https://examsoft.com/solutions/exam-monitor/
- Honorlock is an online proctoring tool that integrates with Canvas and uses AI-powered technology to monitor and flag suspicious behavior during exams. It includes customizable settings, such as identity verification, lockdown browser, and live proctoring, and also offers a range of analytics and reporting features. https://honorlock.com/institutions/

- Examity is an online proctoring system that uses both automated and live proctoring to monitor exams. They offer features such as ID verification, webcam monitoring, and keystroke analysis to prevent cheating. They also offer a secure browser that can be used to prevent access to unauthorized materials. https://www.examity.com/who-serve/education/

3.3 Subject specific coordinators for management of online and technology-specific issues

There is a need for department (subject specific) or school level technology and online instruction coordinators. Online Coordinators could develop and implement strategies for online teaching and learning for a certain discipline, such as math or science, that have specific technology issues. The Coordinator would work closely with faculty members to ensure that they have the necessary resources and support to effectively teach online courses and would also be responsible for staying up-to-date on the latest trends and technologies in online learning. Coordinators would serve as a point of contact for faculty members seeking assistance with online tools, applications, and software. Coordinators could provide training and support to faculty members on best practices for online teaching and learning in the department/school. OIA could could potentially serve as a coordinating unit for this effort.

4. Links to PSU technology resources for faculty and staff

A primary charge of ACIC is to serve as an interface between OIT, OAI and the Portland State Faculty, ensuring that Faculty are informed, heard, and involved in IT decisions for the University. In this section, we include links to PSU campus technology resources and services as an informational update and/or reminder.

4.1 OIT Service Catalog: From some of the answers we got on the survey, some/many faculty do not appear aware of some of the resources that are currently available to faculty. Information about each of these services can be found in the OIT Service Catalog:

- Computing resources/services for faculty research
- Research Data Storage
- Employee Virtual Desktop
- Virtual Computer Lab (primarily for students but may have software faculty need such as SPSS)

4.2 Priority Access Now Available in OIT's High Performance Computing

In addition to the Free access tier, there is now a Priority access tier making it possible for you to reserve dedicated compute time for your funded research needs in OIT's Coeus HPC cluster.

Why it matters

OIT's HPC clusters feature many computer cores, large amounts of memory, and large scratch (temporary) storage volumes suitable for computation and data processing. This new offering is similar to NSF's CloudBank, but is for on-premises computing rather than cloud computing.

It applies to…

Students, faculty, and affiliates within PSU's research community using computational analysis and machine learning in their work.

For more information go to the OIT website to learn about research computing resources and on the HPC webpage for specifics on priority access.

4.3 OAI's Teaching and Learning Resources Website: OAI has constructed a large number of resources related to teaching and learning on their OAI+ website. These include technical "how to" resources as well as a wealth of more pedagogical references aimed at enhancing the teaching and learning experience (e.g., DEI, student engagement, building community, course modality support, etc.).

4.4 Research Computing Resources

- OIT's menu of research computing resources: https://www.pdx.edu/technology/service-catalog#research
- High Performance Computing: https://www.pdx.edu/technology/high-performance-computing-clusters
- Data Storage: https://www.pdx.edu/technology/research-data-storage

5. **APPENDIX 1:** ACIC PULSE Survey Results, organized by frequency

	What existing academic technology or computing issue do you think should be at the top of the ACIC's priority list of things to address in the near future?	Frequency
5	Adequate classroom technology for in-person and remote attendance	18
	Faculty computer refresh; capabilities (hardware and administrative); accessories; adjunct access	14
	Wifi in campus buildings (Smith, Engineering)	10
	Computing resources for faculty research	9
	Better / consistent classroom projectors	7
	Adobe Creative Suite, statistical software, Slack, MS Teams	4
	Remove print quota for students and staff	4
	Student support for educational technologies	4
	Canvas features; extensions	3
	Laptops for students	3
	Subsidizing home technology/expenses	2
	Cell service in campus buildings (KMC)	2
	OIT response time for classroom issues	2
	Cybersecurity	1
	Better PSU website for sharing research	1
	Duo authentication issues	1
	Speed of connection to shared network drives	1
	Free Portland WiFi	1
	Working classroom clocks	1
	Student engagement	1
	Microsoft Teams	1
	Permanent email address for students	1
	Remote desktop solution for students	1
	Professional development opportunities for Teaching and Learning each term	1
	Library's ebook service	1
	Emergency call button for classroom issues/security	1
	Privacy/surveillance issues	1
	Laminator	1
	eportfolio / Pebblepad support	1
	Zoom / Attend Anywhere training	1
	Replace Mediaspace with YouTube	1
	Student fees for online courses	1
	Course design support for a variety of course modalities	1
	advising assistance	1