

Engineering at Illinois IT Governance: Research Working Group

**Final Recommendations and Report on Activities
during the 2023-2024 Academic Year**

Members:

André Schleife (MatSE), Chair

George Chacko (College/CS)

David Lariviere (ISE)

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Caroline Riedl (Physics)

Mark Hart (Engr IT, Ex Officio)

Executive Summary

The working group makes the following recommendations:

- **Perform continuous needs assessment of GCOE's Research Workforce**
 - ***It is the recommendation of the AY23-24 Research Governance Working Group that Engineering IT increase efforts to perform needs assessments of researchers across GCOE. Suggested methods include surveys, outreach efforts to customers of existing services, and solicitations of specific feedback via 'dear colleague' inquiries. In addition, Engineering IT should continue to work with other service providers to enhance existing services where possible in order to meet the growing needs of GCOE researchers.***
 - The AY 23-24 Research Governance Working Group recommends establishing and maintaining procedures for need identification on a *continuous* basis, taking into account the nature of the need, the number of researchers sharing that need, and the time scale of depreciation or expiration of the need. Methods that can feed information into this recommendation include automated need identification, e.g. based on resource usage, establishing a chat forum or mailing list feature, and, potentially, focus groups, periodic surveys, or an anonymous feedback webform. Gathering information about what our competitors (other top academic institutions, industry, or government labs) are doing to accomplish this goal should be included in the charge of a future iteration of this committee.
 - The addition of a dedicated Director of Illinois Computes is expected to be an effective ally in this effort. In addition to an expectation of more regular meetings with Illinois Computes' faculty steering committees, Engineering IT will endeavor to build and leverage relationships with this new director to provide additional opportunities for advocacy and service development.
- **Perform continuous resource availability awareness efforts**
 - ***It is the recommendation of the AY23-24 Research Governance Working Group that Engineering IT endeavor to build and leverage relationships with this new director to provide additional targeted communications about services available from Illinois Computes that are relevant to GCOE researchers.***
 - A service catalog that includes a list of services directly intended for researchers should be developed with a focus on making the information within available to AI/LLMs in order to enable interactive chatbot technology to provide real-time information about services.
 - The addition of a dedicated Director of Illinois Computes will hopefully prove to be an effective ally in increasing the awareness of resources from Illinois Computes. As of April, 2024 they are preparing a new service description website to help address some awareness shortfalls.
- **Perform active (both timely and continuous) communication**
 - ***It is the recommendation of the AY23-24 Research Governance Working Group that Engineering IT produce a monthly newsletter aimed at increasing the awareness of resources that would improve research outcomes across GCOE for the entirety of the research workforce (faculty, staff, and RA's), as well as increasing outreach efforts to improve awareness among those new to campus via onboarding activities such as participation in the GEAR program and welcome-week presentations.***
 - The AY 23-24 Research Governance Working Group recommends establishing solid means of communication between Engineering IT and researchers, to the point that

each researcher reaches out to Engineering IT or Illinois Computes early in the process of a need arising. For existing resources, the information communicated to potential users should include use case examples, setup instructions, contacts for consulting, and training, e.g. in the form of webinars/video tutorials/workshops/panels/).

The working group noted the following improvements over time:

- In the first of this year's committee meetings it was agreed that, for the most part, the core needs of research are being met either by centrally provided services (i.e., Campus Cluster), by "Illinois Computes", or by individual purchases tailored to the needs of the research project. For that reason, this committee placed an emphasis on recommendations for (i) mechanisms to continuously identify unmet needs, (ii) mechanisms to continuously identify and communicate existing resources, and (iii) mechanisms for continuous communication with users, to improve awareness of these.

1. Introduction

At the request of Executive Associate Dean Phillippe Guebelle, a committee representing GCoE¹ faculty, GCoE administrators, and EngrIT² was formed to conduct a strategic-focused assessment of GCOE's research computing needs and return advisory recommendations and comments. In specific, the charge letter³ details the following primary responsibilities:

- Reviewing policies concerning the sustainability and provision of any needed research IT that enhances the College research mission, both at the Engineering College level and at the campus level.
- Considering IT support for new research pursuits in our College, anticipating new opportunities and responding to interests and initiatives from our units.
- Monitor, assist with prioritizing, and provide feedback on the implementation of any proposals concerning research IT.
- Assist with monitoring, providing feedback, and reporting on the progress of work to align Engineering IT services with campus-level IT services, in particular with respect to research.
- Coordinating and communicating with the other IT working groups with overlapping interests.

The charge letter requests particular attention this year to these specific topics:

- Develop recommendations as to what IT services and capabilities should be included in any startup package
- Define the role of research engineers as recommended in the AY2022-2023 Research Governance Working Group report and develop recommendations on areas of greatest need or impact.
- Review any proposed investments in research computing originating from campus and provide input on how they may be best directed and utilized by GCOE faculty

2. Actions of the Committee

Meetings were held on: 11/16/2023, 12/15/2023, 01/26/2024, 02/12/2024, 03/08/2024, 04/19/2024, and 05/10/2024. The meeting on 02/12/2024 was a joint meeting with the Education Working Group.

The committee hosted the following guests:

¹ Grainger College of Engineering

² Engineering IT Shared Services

³ See appendix for entire letter

- 02/12/2024 - Multiple Guests
 - Gianni Pezzarossi - Computational System Analyst (Engineering IT)
 - Tim Boerner - Associate Director for Integrated Cyberinfrastructure (NCSA)
 - David Wheeler - Technical Program Manager (NCSA)
- 04/19/2024 - Laura Herriott - Associate Director, Research Consulting (NCSA)

In addition to these regular group meetings, independent discussions have been held between André and Mark prior to each group meeting for the purposes of agenda-setting, strategy discussions, and arranging guests.

3. Findings and Recommendations of the Committee – Specific Topics

At the request of Executive Associate Dean Philippe Geubelle, the RWG focused on the following particular items, which are discussed in detail below:

3.1 What IT services and capabilities should be included in any startup package

Due to the varied needs of faculty joining GCOE's various departments, it is difficult to provide a consistent set of recommendations on which IT services should be included. Myriad resources exist to meet those needs - some at zero additional cost. In Spring of 2024, Engineering IT has been more engaged in the faculty recruitment process which includes providing oversight on technical details of offers for prospective researchers in a variety of domains. Additionally, language has been included in startup offers this year to provide funds for up to 6 years of professional IT support allowing researchers and their teams to focus more directly on their projects thereby enabling more consistent management of and compliance with campus cybersecurity initiatives for systems across GCOE. ***It is the recommendation of the AY 23-24 Research Governance Working Group that Engineering IT continue to provide this advice on startup offers for all prospective faculty joining GCOE. It is another recommendation of the AY 23-24 Research Governance Working Group that newly hired faculty and Engineering IT should be made aware of each other early in the process and encouraged to engage in direct conversations to determine any unmet needs and to raise awareness of available services and other resources.***

3.2 Define the role of research engineers as recommended in the AY2022-2023 Research Governance Working Group report and develop recommendations on areas of greatest need or impact.

Discussions with Laura Herriott revealed that there are a number of individuals affiliated with Illinois Computes that can meet this need today. The Research Consulting teams at NCSA/Illinois Computes have dozens of consultants embedded with the various service offerings and with in-depth expertise in areas such as computer science, physics, bioinformatics, and other disciplines as well as advanced technologies like GPU systems, high performance computing, and advanced visualization techniques. These needs closely align with the recommendations from the AY22-23 Research Governance Working Group, and while there may be a need for a specific position in particular departments, ***it is the recommendation of the AY23-24 Research Governance Working Group that GCOE explore the skills and expertise available via Illinois Computes' Research Consultants for advanced, cutting-edge needs, and reevaluate the need for college-level research engineers at a later date. It is the recommendation of the AY 23-24 Research Governance Working Group that any other***

needs should be discussed between the user having that need and the currently available experts at Engineering IT, again requiring awareness of each other's existence.

3.3 Review any proposed investments in research computing originating from campus and provide input on how they may be best directed and utilized by GCOE faculty

This academic year, the committee has prioritized promoting awareness of resources available to GCOE researchers, highlighting services emerging from the Illinois Computes initiative, and systematically identifying existing or unmet needs, rather than issuing direct recommendations for new investments. As of 04/15/2024, 19 research teams across GCOE have requested access to Illinois Computes' various resources. In Spring of 2024, Illinois Computes has opened a search for a dedicated director for their services. Once this individual has established themselves in their position, it is expected that they will be a resource for GCOE not only to advocate for the development of services, but also as a driver of communications to researchers that would increase the awareness of the services available through Illinois Computes. That individual would also be in an ideal position to provide a College or Campus level view of what needs are unmet and, subsequently, make recommendations for investments that aim to address these. ***It is the recommendation of the AY23-24 Research Governance Working Group that Engineering IT work to build a productive professional relationship with Illinois Computes' leadership. Additionally, Engineering IT should continue to monitor the development of service gaps by reviewing research computing investments college-wide. The bulk of this AY22-23 recommendation should be carried over to the next academic year's committee when a fuller assessment of Illinois Computes' ability to meet GCOE's research computing needs can be made.***

4 Findings and Recommendations of the Committee – Additional Topics

An important goal of the AY 23-24 Research Governance Working Group was to discuss and recommend sustainable and reliable means for (i) continuous identification of ever changing needs, (ii) continuous identification and communication of currently existing resources that are available to stakeholders, and (iii) continuous communication between Engineering IT and researchers and mutual awareness. To this end, the committee discussed the following recommendations/comments:

4.1 Continuous Identification of Needs

While there is a risk of subjecting GCOE researchers to survey fatigue, surveys remain one of the more trusted methods of identifying gaps in service offerings. Engineering IT has recently begun including small 3-response surveys when an issue is resolved. Including an opportunity for respondents to include a recommendation or open comment could help identify service gaps, assess the number of people with an identical/similar need, and more. Beyond customer satisfaction surveys and resolved ticket surveys, an expertly crafted 'state of GCOE' survey could perhaps be useful to identify individuals who need help but don't know where to turn in order to seek it. Additionally, on pages that describe collections of services, it would be helpful to have a very clear method of registering a need of a service they would value and, more critically, a way of directly contacting a subject matter expert that can help identify and/or advocate for a solution that is right for the research project.

4.2 Continuous Identification and Communication of Existing Resources

The AY 23-24 Research Governance Working Group recommends establishing mechanisms to continuously identify existing resources across Campus and communicating that information to potential users, enabling them to identify possible existing resources that meet their demands. The gathering of this information should be automated as much as possible and be made available in a database format that is full-text searchable, a webpage that displays that

information, and also accessible to ChatGPT/Copilot like systems, to facilitate user interaction. The information collected should include any hardware or software parameters, implementation status and expiration dates, a contact person who is familiar with that resource, and information on how to access the resource as well as cost of access. The AY 23-24 Research Governance Working Group evaluated several existing implementations of such a mechanism, but improvements and consistency are needed for them.

4.3 Continuous communication between Engineering IT and researchers

Researchers that need to be communicated with include faculty, e.g. by presenting occasionally in the faculty meetings of the departments of the college, and students, e.g. through the forum/ mailing list recommended in point 4.1 or by offering a for-credit graduate level course.

Results from discussion both within the Research Governance Working Group as well as a survey conducted of students by Engineering IT's Instructional Services division has revealed a desire for a regular newsletter directed at the broader research workforce describing services available to them and how to begin using them. Additionally, new outreach efforts should be undertaken to assist with outreach and onboarding activities for new faculty. Participation in the GEAR program, engagement with RSOs, attendance of faculty meetings, and the development of a forum-based community akin to Reddit were all discussed as options.

Appendix 1: Charge Letter

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN THE GRAINGER COLLEGE OF ENGINEERING

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October 19, 2023

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Mark Hart (mshart@illinois.edu, Engineering IT – Ex Officio)
David Lariviere (davidl@illinois.edu, ISE)
Ting Lu (luting@illinois.edu, BioE)
Caroline Riedl (criedl@illinois.edu, Physics)

Dear Colleagues:

Thank you for agreeing to serve on the Grainger College of Engineering IT Governance Research Working Group for the academic year 2023-2024. This working group is critical to helping ensure that IT support of the research needs of faculty, researchers, and graduate students in the College is of the highest quality and reliability.

Your recommendations and comments are advisory to the Executive Associate Dean, with primary responsibilities for:

- Reviewing policies concerning the sustainability and provision of any needed research IT that enhances the College research mission, both at the Engineering College level and at the campus level.
- Considering IT support for new research pursuits in our College, anticipating new opportunities and responding to interests and initiatives from our units.
- Monitor, assist with prioritizing, and provide feedback on the implementation of any proposals concerning research IT.
- Assist with monitoring, providing feedback, and reporting on the progress of work to align Engineering IT services with campus-level IT services, in particular with respect to research.
- Coordinating and communicating with the other IT working groups with overlapping interests.

In particular, over this academic year, I would like to ask you to

- Develop recommendations as to what IT services and capabilities should be included in any startup package
- Define the role of research engineers as recommended in the AY2022-2023 Research Governance Working Group report and develop recommendations on areas of greatest need or impact.
- Review any proposed investments in research computing originating from campus and provide input on how they may be best directed and utilized by GCOE faculty

You will also be asked to provide an assessment at the end of the academic year on the current state of IT support for research activities. Dr. Schleife has graciously agreed to chair this working group. He will be in contact with you soon to arrange for your first meeting.

I am thankful to all of you for your willingness to contribute to this important work for our College. I look forward to joining you at your first meeting to discuss the charge and answer any questions.

Sincerely,

A handwritten signature in blue ink, consisting of several vertical strokes followed by a horizontal line with a small flourish at the end.

Philippe H. Geubelle