

December 6, 2022

To: Office of Academic Affairs & Planning  
University of Washington Graduate School

From: Magdalena Balazinska, Director, and the Executive Committee  
Paul G. Allen School of Computer Science & Engineering

Re: **Allen School Response to 2022 Program Review Report**

We begin by expressing our deep appreciation to professors Kurose, O'Donnell, Rexford, and Witten for the time, thought, and care they devoted to reviewing the Paul G. Allen School.

Their report recognized the many accomplishments of the Allen School in the 12 years since our most recent review, identified several areas where increased attention is warranted, and made what we consider to be a critically important recommendation in terms of positioning the Allen School and the University of Washington for the future.

We will briefly comment on the four recommendations in the body of the report, and on the additional suggestions contained in the appendix.

**Recommendation 1. For the university to grant the Allen School continuing status, with a next review in 10 years.**

We appreciate this recommendation, the comments that accompany it, and the comments in the *Overview* section of the report. We heartily agree that “Computer science is a core piece of 21<sup>st</sup> century intellectual life, and central to a modern 21<sup>st</sup> century university.”

**Recommendation 2. For the university to continue to recognize that the Allen School is, in many ways, unique relative to other academic units at UW, and to consider whether it should operate with greater autonomy from the College of Engineering, for the benefit of UW, its students, and local and statewide stakeholders.**

We strongly support the recommendation that the University convene a task force to consider increased autonomy for the Allen School. We also strongly support the report’s statement that “a guiding principle should be to maximize the positive impact of the Allen School across the UW, while minimizing any harm to specific units such as the College of Engineering and the College of Arts & Sciences,” and the report’s emphasis that “regardless of the findings of this task force, we encourage UW to recognize that the Allen School’s situation is unique relative to other academic units at UW, and to continue to partner with the Allen School to achieve its goals and the goals of the University.”

During the outbrief at the conclusion of the Review Committee visit, Professor O'Donnell made an important observation. Paraphrasing: “There is a national evolution going on regarding the positioning of computer science programs within universities. The University of Washington needs to seriously consider how it is going to respond, or it runs the risk of being left behind.”

We look forward to serious analysis, discussion, and consideration of this topic at UW.

**Recommendation 3. For the Allen School to continue to grow the undergraduate program, while enhancing opportunities for undergraduate research and directly including a diversity component in the curriculum.**

We strongly support the Review Committee recommendation that we continue to grow our undergraduate program. During the 2020-21 academic year we proposed a plan to grow by 400 annual degrees (undergraduate and graduate, the vast majority being undergraduate) over 4 biennia. The first 100 annual degrees were funded by the legislature during the 2021-23 biennium. We are grateful that the University is submitting a request to the legislature for the second 100 annual degrees during the 2023-25 biennium. This growth trajectory must be maintained, and if possible accelerated. (For Fall 2022 we were unable to offer Direct Admission to more than 600 Washington students who would have received Direct Admission to other College of Engineering programs. In the 2021-22 academic year we awarded only 6% of the Bachelor's degrees on the Seattle campus, a lower percentage than at many other major universities and a lower percentage than several other UW-Seattle units.)

We recognize the importance of addressing diversity in computing in our curriculum, and also ethical implications (a topic that was not noted in the report). We have been moving in this direction, and we will accelerate.

The Review Committee is also correct regarding the relatively limited opportunities for undergraduates to engage in research. Our track record is reasonable. As one example, over the past 10 years we have had more students recognized in the Computing Research Association's "Outstanding Undergraduate Researcher Award" competition than all but one of the nation's hundreds of computer science programs. However, as our undergraduate enrollment has expanded, opportunities have not kept pace. This past year we launched initiatives to increase research opportunities for undergraduates, and also for high school students. We will continue to expand these efforts.

**Recommendation 4. Continue the spirit of partnership across units of the UW ecosystem, to ensure that "a rising tide lifts all boats."**

We appreciate the Review Committee's recognition that "the rising tide of the Allen School has lifted UW as a whole." We are deeply committed to this, and we have worked hard at it.

We recognize the importance of taking great care to be outward-looking and inclusive. As noted in the Review Committee report, our track record here is strong. We also understand the potential impacts of our growth on other units of UW, and support the suggestion that UW carefully analyze these impacts.

**Appendix: Additional Suggestions for the Allen School**

Faculty mentoring and retention

We recognize the need for written policies in a unit of our size. We have, in fact, made significant progress in the past few years. We appreciate the highlighting of some additional areas where attention is needed.

DEIA

We appreciate the recognition of our commitment to DEIA, and we are pleased that the report notes the perception of a positive climate by our Ph.D. students. Broad participation in the creation of a substantive DEIA strategic plan over the past several years has contributed significantly to buy-

in. Annual independently conducted climate surveys of our undergraduate and graduate students help us to identify issues that need to be addressed.

Problematic advisors, although very small in number, are certainly of concern. We have been significantly expanding our approach to identifying issues when they arise, following up with both students and faculty, and raising these issues during annual reviews. We recognize that even greater effort is needed. The suggestion for training is a good one.

Issues of culture and social “glue” indeed loom large. COVID-induced isolation has amplified the impact of increased size. We are working hard on this.

#### Synergy with the tech industry

In 1977, when our most senior active faculty members joined what is now the Allen School, we had a dozen faculty members, and Microsoft was a dozen 20-somethings in Albuquerque. We have been blessed to grow simultaneously and in partnership with the region’s technology industry.

We acknowledge the risks inherent in partial leaves. We appreciate the latitude that the University has afforded us as we experiment to learn how to manage these relationships in ways that benefit our students, our faculty, the University, the companies, and the region. If we get this right, the competitive advantage will be enormous. This is an example of an area where, as indicated above under “Faculty mentoring and retention,” we have established detailed written policies - not just the policy exception that enables these partial leaves (which was included in our self-study), but a detailed policy and rubric for annual review and approval of these partial leaves that focuses on responsibilities such as teaching, advising, graduate student funding, committee obligations, and physical presence.

#### Budgetary constraints and opportunities

As noted earlier, we strongly support a careful analysis of the implications of continued growth and increased autonomy.

The introduction of a full-time fee-based daytime Master’s program is something we have considered, and will continue to consider. The enormous demand for our Bachelors graduates and the relatively small size of our Ph.D. program relative to our Bachelors program have caused us to feel that these are the places where we should invest our effort, until our Bachelors program meets demand on the part of highly qualified Washington students and our region’s tech industry, and until our Ph.D. program is of an appropriate scale relative to our Bachelor’s program .

#### **In Summary**

We once again express our deep appreciation to the members of the Review Committee for the time, thought, and care they devoted to this process.

For those reading the Review Committee report and this response, we would note that there is important context in our Self-Study, which we took seriously and which the Review Committee report described as “extremely thoughtful and detailed.” It is available in the section labeled “Formal Reviews of the Allen School” at <https://www.cs.washington.edu/alumni/history>.

January 20, 2023

To: Office of Academic Affairs & Planning  
University of Washington Graduate School

From: Nancy Allbritton, Frank & Julie Jungers Dean of Engineering

Re: Response to 2022 Allen School Program Review Report

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Thank you for the opportunity to respond to this program review report. I extend my gratitude to professors Kurose, O'Donnell, Rexford, and Witten for their time and work on this committee.

**Recommendation 1. For the university to grant the Allen School continuing status, with a next review in 10 years.**

The College of Engineering wholeheartedly supports the recommendation to grant the Allen School continuing status, with a subsequent review in ten years. The Allen School is a source of pride for the University and the College of Engineering and has been pivotal to the growth of the tech industry within our region. We look forward to championing their continued success and growth in the next decade.

**Recommendation 2. For the university to continue to recognize that the Allen School is, in many ways, unique relative to other academic units at UW, and to consider whether it should operate with greater autonomy from the College of Engineering, for the benefit of UW, its students, and local and statewide stakeholders.**

We do not support this recommendation for a variety of reasons. As demonstrated by the committee's report, the Allen School has thrived as a unit within the College of Engineering. Allen School leaders have successfully championed their growth and the College of Engineering and University have provided critical support for their expansion while ensuring that the Allen School operates with great autonomy. For example, since 2016, the College has transferred a minimum of \$4M in permanent funds and \$2M in one-time funds in support of the Allen School. The University provided \$800,000 in additional permanent funds as part of the second expansion proviso in 2014. In 2018, the Allen School received an additional \$500,000 in permanent funds from the College of Engineering to support faculty hiring to meet proviso goals. The Allen School, College of Engineering, and University Advancement have collaborated to create a dynamic organization that continues to meet the Allen School's fundraising potential and ambitions. This has been a highly successful collaboration with Allen School leaders, as demonstrated by the excellent facilities that the School operates within as well as their success in building a large endowment. The Allen School has full autonomy to carry balances in their endowment and reinvest unspent endowment earnings to the endowment principal. The College distributes 100% of proviso funds to the Allen School as soon as funding is available and the Allen School can carryover GOF and DOF. This has allowed the School to accumulate very significant reserves enabling them to self-fund initiatives. The University and

College of Engineering are advancing a legislative agenda again this biennium to support continued Allen School growth. The Allen School has received legislative support from seven provisos since 2012, resulting in funds of \$15.3M annually in addition to that noted above, all with support from the College of Engineering and University.

Many University departments that rival or exceed the size and scope of the Allen School – like Genome Sciences, Oceanography, and Chemistry operate within colleges. The trend at the UW is not to breakup these larger units but to ensure that they have the tools and organizational structure to operate efficiently and continue their high-profile work. For example, the Department of Medicine is a large unit in the School of Medicine overseeing 30% of faculty and generating 27% of research awards. Within the College of Engineering, the Allen School accounts for 27% of our faculty and 35% of research awards.

Partnership and collaboration are valued at the UW. Rather than creating new administrative infrastructure, the UW has sought to create partnerships spanning our existing Schools and Colleges. The School of Medicine and the College of Engineering joined forces to create a single high profile Department of Bioengineering rather than create an independent unit in each school and college, again delivering broad benefit to students. It is our position that expanding partnerships and collaborations focused on shared efficiencies rather than disbanding units best serves the University.

As foundational computing skills become increasingly important for all students, universities are addressing the educational shifts needed to best serve our students. As the report notes, there are no well-established, cookie-cutter solutions and each program responds to its own context. The UW has many important initiatives focused on addressing these needs while bringing out the best of our cross-campus expertise through partnership and collaboration. Across the country, the vast majority of computer science and engineering departments (including those highly ranked) are housed within engineering colleges.

A unique aspect of the Allen School structure is that computer science degrees are granted through the College of Arts & Sciences yet all the operational support for the Allen School is delivered by the College of Engineering. The College provides extensive administrative support in managing promotion and tenure, performance management, union grievances and faculty appointments. The Allen School benefits from College investments like the HR payroll modernization project that cost over \$3M to implement and the upcoming Finance Transformation – projected to cost the College of Engineering \$9M over the next decade. During a critical time in which campus is moving toward more shared services and efficiencies gained through collaboration, creating an additional stand-alone unit seems counter to all of those guiding principles.

In an effort to wisely steward public and private investments in the University, we are increasing shared services and efficiencies, not duplicating staffing and expanding administration. As foundational computing skills become increasingly important for all students, curricula innovation and at scale deliverability is best done through intra-college collaboration. As the University expands its footprint in AI and machine learning and looks to the future workforce development needed to realize quantum engineering and science, intra-college collaboration will become increasingly important for our students as well as our industry partners. **In our observation the trend and culture at the UW is to remove silos and increase collaboration, as such we are opposed to this**

**recommendation and do not believe that this would benefit UW, students, or local and statewide stakeholders.**

**Recommendation 3. For the Allen School to continue to grow the undergraduate program, while enhancing opportunities for undergraduate research and directly including a diversity component in the curriculum.**

We are supportive of this recommendation and believe there is a multitude of strategies that could be deployed to best serve the students of Washington state. We would be supportive of efforts to expand undergraduate online courses modeled after Georgia Tech's highly successful program and to offer summer sessions as the Allen School receives 95% of the net return revenue. The review committee noted that other public flagship universities have substantially higher ratios of bachelor's degrees and advanced degrees to tenured track faculty and teaching faculty than the Allen School. An expansion of teaching faculty as well as other strategies would help to address this issue and bring us closer to parity with our peers.

While we are supportive of this recommendation, we strongly agree with the committee that the University should factor this growth into a holistic campus-wide enrollment management strategy. A holistic approach will ensure our collective success and allow us to deliver a student experience anchored in educational excellence and access. While the University has responded to student and industry demand for computer science and engineering degrees over the last decade, we have not properly funded the numerous other capacity constrained majors or addressed the demand on pre-requisite courses resulting from Allen School growth. This approach creates an uneven educational experience for our students, essentially developing "have and have not" units. As society progresses, workforce needs and training will shift, and it is the University's responsibility to ensure that we are providing our students with the education required for the workforce of the future.

We are dedicated to supporting the Allen School in their diversity work in alignment with the College of Engineering's strategic priorities and the University's race and equity initiative. The College of Engineering established the Office of Inclusive Excellence (OIE) that is responsible for leading strategic, policy-focused changes to transform the culture of the College of Engineering. This work focuses on embedding DEI best practices throughout our communities and improving structures that enable DEI initiatives to succeed. This work has also created a community of DEI experts within the College of Engineering with a shared knowledge and expertise and the Allen School is a critical part of this community. The Allen School recently hired a DEI director. Our OIE team has worked closely with the Allen School team to align efforts and share resources for critical programs like Startup, Dean's Scholars and STARS, and foresee great advances in this work with continued collaboration. These programs are collectively an important part of advancing the University's race and equity initiative and the College of Engineering's strategic plan.

It is a College of Engineering strategic plan priority to expand undergraduate research opportunities and we are fully committed to supporting the Allen School in these endeavors. Partnerships with other engineering units, the School of Medicine and the College of Arts & Sciences would be of great value to the University and College of Engineering while broadening the types of research experiences and numbers of research opportunities available to their large undergraduate population.

**Recommendation 4. Continue the spirit of partnership across units of the UW ecosystem, to ensure that “a rising tide lifts all boats.”**

We agree with the majority of the points in this recommendation. We are dedicated to helping the Allen School to grow its degree offerings, through a new full-time fee-based MS program with daytime courses. We do not however support the recommendation that OPB should conduct an independent analysis to detail the financial consequences of continued growth, and possibly increased autonomy, for the Allen School. Given the operational complexities and numerous nuances of the Allen School and the College along with the resources needed to address Finance Transformation, we do not believe this would be a useful exercise. Such an exercise would require significant personnel with limited to no return on investment.

The University of Washington has made great strides within the last decade to elevate its reputation and rank. The investments in the Allen School have helped fuel the explosion of the tech industry within the Puget Sound region. The School is very important to the University, the College of Engineering and our industry partners. Working together, we can continue to increase partnership, collaboration and provide an excellent educational experience while lifting all boats.

Thank you to the Committee, the Allen School leadership and the Office of Academic Affairs & Planning in the Graduate School. Please do not hesitate to reach out with any questions.