

Strategic Plan for School of Computer Science (SoCS)

- Our core school principles are.....
- We aim to provide exceptional undergraduate training in Computer Science with the options of co-op placements, interdisciplinary training, and research involvement. We also aim to train high quality graduate students for both industry and academia.
- We currently have 5 undergraduate programs with 954 students and 4 graduate programs with 108 graduate students. We have a number of research clusters and significant successful research activity as evidenced by over \$1.1M annual research funding and over 11K annual citation counts.
- Define Research clusters – we want to grow in AI, cybersecurity, HCI, visual computing, etc., which align with SoCS' current strengths and market demands.
- Our graduates (both undergraduate and graduate) are in high demand based on labour market analysis provided by Huron.
- Our proposed trajectory for SoCS in the next 5-10 years is to support more undergraduate students (especially international students) with more faculty and staff members. We will also grow our popular MCTI program and potentially identify other areas for new course-based MSc programs.

Rationale for proposed new tenure-track hires in the next five years.

The undergraduate and graduate programs in SoCS have seen significant growth since 2014 and 2019, respectively, with a current enrollment of 954 undergraduate students, 36 thesis-based MSc students, 34 MCTI students, and 38 PhD students in Computational Sciences and Computer Science programs combined. The programs are supported by 36 faculty members, including 3 probationary (pre-tenure) and 23 tenured faculty. The current undergraduate student to faculty ratio of 36.7:1 is a cause for concern.

Several faculty members have been granted course releases due to their administrative positions, such as Director/Associate Director, MCTI Program Director, and CEPS Academic Misconduct Committee. These releases result in a reduction of one or two courses per academic year. Additionally, some tenured faculty are granted full-year or half-year sabbatical leaves, with up to 7 faculty members (4 full and 3 half) on leave during the 2022-2023 academic year. Consequently, SoCS is facing significant limitations in its ability to offer a diverse range of upper-year elective courses and graduate courses, which has been a significant issue for the graduate programs and graduate supervision.

Due to high demand from both domestic and international students, SoCS often exceeds its target of admitting 200 incoming undergraduate students. For instance, in Fall 2022, after the summer melt, 293 students joined SoCS, including 56 international students. As a result, the School is requesting approval for thirteen (13) new tenure-track hires over the next 5 years to support the increased enrollment target of 300. This will help lower the undergraduate student to faculty ratio to approximately 30:1, which is still higher than the ideal ratio of 25:1. In SoCS' response to the CPR review, we have identified the following research areas as top priorities for hiring:

- *Human-Computer Interaction*
- *Machine Learning*
- *Computer Graphics*
- *Artificial Intelligence*
- *Computer Vision*
- *Web & Information Retrieval*
- *Programming Languages*
- *Visualization*

Rationale for proposed new staff hires in the next five years.

At present, SoCS has 11 staff members reporting to the School, with 2 of them dedicated to the course-based MCTI program. Consequently, only 9 staff members support the 5 undergraduate programs and 3 thesis-based programs. If SoCS increases its undergraduate student intake to 300 students, we will need to expand our staff complement to 17 to support the growth in the undergraduate program, the increase in international students, and the expansion of the MCTI program. This will reduce the undergraduate student to staff ratio to approximately 70:1, which is still higher than the ideal ratio of 50:1.

Future plans

SoCS has set an ambitious goal of becoming one of the top 10 computer science departments in Canada over the next decade, making it a highly sought-after study destination for domestic and international students. It is worth noting that the University of Guelph was ranked #9 among Canadian universities in the 2022 Times Higher Education CS subject ranking and #18 in the 2023 Macleans CS subject ranking. Therefore, while our goal is ambitious, we are confident that it is achievable.

To accomplish this goal, we will need to invest in new faculty, staff, and infrastructure. We understand that such investments come with associated costs, but we are confident that SoCS can generate more revenue to cover these expenses.