

MEMORANDUM

ATTENTION: Senate	TEL
FROM: Peter Keller, Vice-President, Academic and Provost, and Chair, SCUP	
RE: External Review Mid-Cycle Report for the School of Computing Science (SCUP 17-06)	
DATE: January 16, 2017	TIME

At its January 11, 2017 meeting, SCUP reviewed the Mid-Cycle Report for the School of Computing Science which resulted from its 2013 external review. The report is attached for the information of Senate.

MEMORANDUM

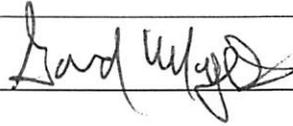
ATTENTION: Peter Keller, Chair, SCUP

TEL

FROM: Gord Myers, Vice-Provost and Associate Vice-President, Academic

RE: External Review Mid-Cycle Report for the School of Computing Science

DATE: December 8, 2016



TIME

The External Review of the School of Computing Science was undertaken in March 2013. As per the Senate guidelines, the Unit is required to submit a mid-cycle report describing its progress in implementing the External Review Action Plan. The mid-cycle report, together with a copy of the Action Plan approved by Senate, is attached for the information of SCUP.

c: Greg Mori, Director, School of Computing Science
Uwe Glässer, Dean Pro Tem, Faculty of Applied Sciences



COMPUTING SCIENCE

Attn: Senate Committee on University Priorities
Re: School of Computing Science External Review Update

Prof. Greg Mori
Director, School of Computing Science
Simon Fraser University
8888 University Drive
Burnaby BC V5A 1S6
Canada

Tel: 778-782-7111
Fax: 778-782-3045
Web: www.cs.sfu.ca/~mori
Email: mori@cs.sfu.ca

November 29, 2016

Please find attached an update on the implementation of the Action Plan resulting from our 2013 external review.

To place this update in context, we continue to experience increasing student demand for computer science at the Burnaby campus. The number of applications to our Burnaby undergraduate major has increased by 100% in the past 4 years. The number of undergraduate majors was 1,671 in 2015/16, up from 1,360 in 2012/13.

Graduate programs at Burnaby exhibit similar high demand. We received 693 applications to our graduate programs in the 2016/17 academic year.

The School of Computing Science is focused on (1) improving its international reputation for quality in teaching and research, (2) addressing gender diversity, and (3) meeting student demand for education in computer science.

Thank you for your time in reviewing this material. I look forward to discussing this update with you.

A handwritten signature in black ink, appearing to be "G Mori".

Greg Mori
Professor and Director
School of Computing Science
Simon Fraser University

External Review Update for the School of Computing Science

Action	Progress Made
1. Programming	
1.1.1 Undergraduate	
<ul style="list-style-type: none"> Discontinuing the Software Engineering specialist option. To focus our teaching in this area and to clarify our offerings to students, we plan to discontinue the Software Engineering specialist option that has been offered at the Burnaby campus and will refer interested students to the Software Systems program offered at the Surrey campus. 	This has been accomplished. The Software Engineering specialist option has been removed from the calendar.
<ul style="list-style-type: none"> Instituting mandatory labs in 1st year courses. Mandatory labs for the key introductory course CMPT 125 are currently being developed and will be offered for the first time in Spring 2014. These labs will be three credit courses that run in parallel to the lecture-based courses. The corresponding lectures and labs will be co-taught by a team of two faculty members, preferably one teaching and one research faculty member. 	Mandatory labs have been introduced in our core first year course. The course Computing Laboratory (CMPT 127) is a three-credit course taught in a lab environment. It is a co-requisite for students taking Introduction to Computing Science and Programming II (CMPT 125).
<ul style="list-style-type: none"> Introducing a combined BSc/MSc program. In May 2013, the School passed a motion of approval in principle for creation of a concurrent Bachelor-Master's program in Computing Science. We will now proceed to design the program. 	<p>The combined BSc/MSc has been designed. One student has successfully completed and one student is currently enrolled.</p> <p>The program is still in a "trial" state. There is relatively little administrative procedure on how to process/handle these students, and the number of applicants is small. Discussions with the Dean of Graduate Studies' office have involved possible name changes (e.g. "Accelerated Masters program"). We believe there is potential in this BSc/MSc combination, but more work on the student recruitment side would be necessary to achieve reasonable scale.</p>
<ul style="list-style-type: none"> Introducing a "computational thinking" course for students of other programs. Such a course will offer an increasingly relevant introduction to "computational 	The School currently offers a suite of "service" courses to non-majors. These include CMPT 102, 110, 165, and 166.

<p>thinking” for students from a broad range of programs. We will design an attractive course, gradually build up enrollments, and apply for a Q-designation of the course.</p>	<p>Due to resource constraints, we have not developed a new computational thinking course. We currently face a high demand for our computer science major and do not have capacity for another course. We are currently exploring the feasibility of revamping CMPT 120 to serve in a similar role, introducing computer science to a broader audience of students across the university. This would likely be done alongside a rationalization of the aforementioned service courses.</p>
<ul style="list-style-type: none"> • Better support for the Women in Computer Science student group. While they have had unofficial faculty mentors, we will assign an official faculty mentor to our Women in Computer Science group. The faculty mentor will help with scholarship applications and liaise with faculty at SFU as well as with the local industry. This position will be considered as the internal service of that faculty member instead of the regular committee assignment. 	<p>Improving gender diversity is an important goal for the field of computer science and our school. Starting in 2015, we changed our committee structure to include a Diversity Committee, instead of a single faculty member who supports the Women in Computer Science student group.</p> <p>The Diversity Committee includes 9 faculty members, men and women. Four staff members from our school also serve in the committee. It has a mandate to support the Women in Computer Science student group, and more broadly address diversity initiatives from outreach to recruiting to scholarships and awards.</p> <p>Our FAS Advancement team has raised funds for scholarships for women entering our program, awards for students attending major conferences (e.g. Grace Hopper Conference), and for supporting faculty members. The school will continue to work in concert with our advancement team to increase the funding available for these initiatives. The school also will continue to provide seed/matching funding to support these initiatives where donor funding is unavailable. Concrete examples of successes include the endowed Rajan Family scholarships for female undergrads (\$20,000 entrance award, \$2,500 awards to continuing students), the Allocadia Conference Fund for female students (\$5,000 per year), and funding from the school for students to attend the Grace Hopper Conference or ACM Canadian Celebration of Women in Computing (~\$10,000 per year).</p> <p>We have also provided the Women in Computing Science student group with office space in the Applied Sciences Building. We look forward to continuing to work with them to improve gender diversity in computer</p>

	science.
1.1.2 Graduate	
<ul style="list-style-type: none"> Streamlining our MSc portfolio. To streamline the portfolio of MSc programs, we will work to eliminate the unfunded MSc project option with the goal of offering only a funded research option (thesis or research project) and a non-funded course option. We have recently experienced an upward trend of the number of non-thesis applicants, which fits well with the new graduate co-op program. 	<p>The unfunded MSc project option has been eliminated. We no longer admit students to the MSc project and MSc course options. The MSc course option will remain as a fallback plan for students admitted to the MSc thesis option who are unable to complete their degrees under the funded thesis option.</p> <p>We have launched a highly successful professional MSc in Big Data to respond to the demand for non-thesis applications. The 3rd cohort of students entered this program in September 2016. A total of 42 students enrolled in the 3rd cohort, selected from 365 applicants. This is a 16 month program, including a 4 month co-op. The average monthly co-op salary for these students was \$4300 in 2016.</p>
<ul style="list-style-type: none"> Establishing the graduate co-op program. A graduate co-op program began in January 2013. The grad co-op course may be used for credit towards MSc degrees. PhD students may participate in grad co-op, but may not count co-op courses towards their course requirements. The program will be reviewed after two years to evaluate student and employer demand. The program is currently supported by a half-time co-op coordinator, which is sufficient for roughly 60 student work terms per year. We anticipate growing demand from an increasing number of course-based MSc students, which will require the upgrade to a full-time coordinator position. 	<p>The graduate co-op program was established in 2013. It was first used by our MSc thesis and PhD thesis students. Employer demand is strong. For example, in 2014 the median salary for a grad co-op student was \$4200 per month (MSc thesis / PhD students).</p> <p>The program continues to be used by MSc and PhD thesis students, in addition to the MSc in Big Data students.</p> <p>As part of our MSc in Big Data program, we have requested funding for an additional full-time co-op coordinator position.</p>
<ul style="list-style-type: none"> Reducing the dependency on a small number of source countries. In order to reduce our dependency on applicants from China and Iran, and to diversify our graduate student population, we will actively strengthen existing relationships with universities in India (IIT Madras, Jadavpur University), Brazil (Universidade Estadual de Campinas), Germany (Technical University of Darmstadt, University of Bielefeld) and other countries. As a next step, we will explore the opportunities for exchange programs or even dual degree 	<p>The graduate program attracts high quality students from around the world. In 2016 we received applications from students from 25 different countries. China, India, and Iran remain the dominant sources of students. This is reasonable, given the high stature of computer science as an undergraduate discipline in these countries and the quality of students they produce. Maintaining a steady stream of high quality students from the top universities in these countries is important for the health of our graduate program.</p>

<p>programs with these universities.</p>	<p>We receive many applications from the top Iranian universities (e.g. Sharif University, University of Tehran), have a strong reputation in China (e.g. our dual degree programs with Zhejiang University), and are building pipelines of students from quality universities in India (e.g. top IITs).</p> <p>For the Fall 2016 admissions cycle the top 3 countries for applicants were:</p> <ul style="list-style-type: none"> • PhD: China (18%), India (10%) and Iran (41%) • MSc: China (23%), India (26%), and Iran (23%)
<ul style="list-style-type: none"> • Increasing the percentage of domestic and female students. We will establish a “graduate programs visit day” for admitted top students. We will also promote our graduate programs more systematically, through classroom visits and undergraduate research projects including USRAs, to our own undergraduate student population. Our recent efforts with invited visits and offers of entrance awards to the very top domestic applicants have already led to an increase in the number of domestic and female students, and we will pursue these efforts more aggressively. 	<p>The percentage of female students in graduate programs remains relatively constant around 23%. The MSc in Big Data program has seen an increase in female applicants and admissions from 22% to 29%. We have featured strong female student role models in recruitment videos and images for our website.</p> <p>The percentage of domestic applicants to our MSc thesis and PhD programs were 8% and 4% respectively in Fall 2016. Hard data on domestic applicants for comparable Canadian computer science departments are unavailable. Anecdotal evidence suggests our experience is similar to comparable institutions. Domestic interest in advanced degrees is limited, likely influenced by the strong job market for undergraduates with computer science degrees.</p> <p>The School’s executive committee has discussed strategies for rationalizing efforts around our USRA program and plans to implement a centralized matching of students to faculty members in the coming cycle.</p>
<ul style="list-style-type: none"> • Strengthening the graduate DDP with Zhejiang University. To strengthen the recently (fall 2011) introduced graduate DDP and to recruit more Canadian students, we will increase the exchange of faculty members between SFU and ZU and strengthen the research collaboration. We are already in the process of establishing a joint research center in Big Data Science which will hold annual workshops etc. 	<p>The joint SFU-ZU research center in Big Data has held two symposia at Zhejiang University in Hangzhou, China in 2015 and 2016. These events were well-attended by both sides, with 4-5 faculty members from SFU attending to present research talks and discuss collaborations.</p> <p>Tangible outcomes include research visits and papers published between researchers at the two universities. Examples include top-tier papers</p>

<p>and support faculty members of both universities in joint research grant applications and industry collaborations.</p>	<p>published by Martin Ester (SFU) and Prof. Can Wang (ZU), CIKM 2016; Greg Mori (SFU) and Prof. Zicheng Liao (ZU), CVPR 2016.</p> <p>Higher-level successes involving joint research grants and industry funding have not yet been obtained.</p>
<p>1.1.3 Teaching</p>	
<ul style="list-style-type: none"> Establishing better relations with the student leadership. We will invite representatives of the CS student groups to attend one Executive Committee meeting per semester, or on demand, to give them the opportunity to share student concerns and suggestions. In return, the Undergraduate and Graduate Program Directors may attend meetings of the student group executives. We will also consider holding an annual town hall to gather input on the student environment from all students. 	<p>Representatives from the undergrad (CSSS) and grad student associations (CSGSA) are invited to our School Meetings, held bi-monthly.</p> <p>We invite agenda items from CSGSA and CSSS representatives. Example positive interactions include a recent presentation by the CSGSA President regarding student funding. The School of Computing Science recently increased its minimum funding guarantees for new thesis-based graduate students. Based on feedback from the CSGSA President we retroactively applied these higher funding levels to students under the previous funding agreements.</p> <p>In general though, attendance by student representatives at the School Meetings is moderate. Interactions with student leadership remain important to our school, but we do not feel the Executive Committee meetings present an effective medium for communication.</p>
<ul style="list-style-type: none"> Assessing teaching. We will develop guidelines to assess teaching in the context of the biennial salary review and of tenure and promotion applications that will include not only student evaluations but also other sources such as peer evaluations, student focus groups, teaching portfolios, and undergraduate research supervision. This process will be led by a committee consisting of teaching and research faculty members that will start its work in the fall 2013. 	<p>A committee was struck, led by Dr. Janice Regan (Senior Lecturer). This committee held numerous meetings and consultations. These ended up coinciding with SFU's switch to a new on-line teaching evaluation system (SETC). The committee ended up providing input to the SETC process.</p> <p>Beyond this, the School's TPC Criteria (revised and approved in April 2016) include statements regarding the sources of material mentioned (e.g. peer evaluation, teaching portfolios, undergraduate research supervision, awards, student feedback outside the course evaluation forms, course materials, etc.).</p>
<ul style="list-style-type: none"> TA budget. We will include the full amount of planned (and required) TA expenditure in future budget submissions to the Dean's Office, so that TA funding will be placed on a 	<p>This has been largely achieved. Uncertainties in student (over-)enrolments and year-end budget adjustments persist, but planned TA expenditures in the range of \$750,000-1,000,000 per annum have been</p>

secure basis to the extent possible.	included in budget submissions.
<ul style="list-style-type: none"> TA allocations. Starting this September, we will assign a faculty member to allocate TAs to courses together with our Manager, Administrative and Academic Services. This faculty member will ensure that TA applicants have the required skills, including language skills, and that allocations match skills of TA applicants to TA positions. 	This has been implemented. One faculty member has been assigned this committee duty each year.
2. Research	
<ul style="list-style-type: none"> Improving administrative support for large research grants. With the increasing number and size of research grants, we will create additional administrative staff positions to support large research grants such as NSERC Create and NCE. These positions may be shared by multiple grants. 	We created a Coordinator Research Grants and Projects position in the school. We conducted a trial run of this position for 3 months in 2016, in support of large NSERC grants. We will continue to monitor and examine this situation, balancing the uneven workload of such a position against other day-to-day administrative needs.
<ul style="list-style-type: none"> Increasing advancement capacity. FAS has only one full-time Advancement Officer position to serve three large, industry-oriented Schools. The advancement support will have to be increased to capitalize on the many opportunities in the CS/IT sector. In particular, the School needs and sees the potential for more endowed chairs and industry chairs, whose acquisition will require substantial advancement efforts. 	A new advancement position focusing on the School of Computing Science was created in the FAS Dean's office in 2016. We appreciate the efforts of our FAS Advancement team and look forward to working with them to secure additional endowed/industry chairs.
3. Resources and Administration	
<ul style="list-style-type: none"> Improving administrative staffing levels. As covered in section 2.1, additional administrative staff will be hired to support the increasing number and size of research grants. As pointed out by the Reviewers, the administrative staffing levels are low for a unit of this size, in particular in the area of financial assistance. We will consider increasing the staffing level or, if an increase is impossible, re-organizing the job descriptions of the current staff members based on 	As noted above, we have created a new grant management position. We continue to work on improving the quality of administrative support available to faculty.

<p>the needs in the various administrative areas.</p>	
<ul style="list-style-type: none"> • Reviewing the services of the FAS Student Affairs Unit. Concerns have been expressed that the FAS Student Affairs Unit may not be able to keep up with the advising demands of CS students, and that the School's messaging is not getting delivered effectively in recruitment activities. These concerns will be reviewed and necessary actions will be negotiated with the Dean's Office. Improved communication is considered to be crucial to improve the services in the future. The School will assign a faculty member to liaise with the FAS Student Affairs Unit and provide better faculty and staff representation at events organized by the FAS Student Affairs Unit. 	<p>The School has assigned a faculty member to liaise with the FAS Student Affairs Unit. The Associate Director, Undergraduate and Administration, has taken on this role. Interactions regarding student recruitment related to diversity are also done via the Diversity Committee mentioned above.</p> <p>Overall, there remain concerns regarding advising demands given the growth of student populations in both the School of Engineering Science and the School of Computing Science.</p>
<ul style="list-style-type: none"> • Maintaining the School website. We will take advantage of the SFU Content Management System to improve our web presence. We will assign a faculty member overall responsibility and authority to supervise and direct our website maintenance. Responsibility for routine maintenance and updates of areas of content will be assigned staff members of the School most closely involved in that area. Once these responsibilities are in place, the assigned faculty member will initiate a review of each section to ensure that content is up to date, well written and that all links are correct. 	<p>The School has assigned a staff member to be in charge of maintaining the website. Routine maintenance and updates of content are done by this staff member, with assistance from domain experts (faculty and staff in the relevant areas).</p> <p>We have concerns about the domain structure used in SFU's website. The standard "brand" of a computer science department is www.cs.sfu.ca. The use of a single domain (www.sfu.ca) with department-level directories, e.g. www.sfu.ca/computing is unusual and detrimental.</p>
<p>4. Working Environment</p>	
<ul style="list-style-type: none"> • Establishing a Colloquium. To strengthen the sense of community among faculty and graduate students, and to expose them to current research issues, we will establish a CS Colloquium with internal speakers, which will complement the already existing Distinguished Lecture Series featuring high-profile external speakers. The CS Colloquium will feature talks of selected faculty members and graduate students that are of interest and accessible to 	<p>A CS Colloquium has been offered for the past 3 years. We typically host 2 or 3 talks in each of the Fall and Spring trimesters. The speakers are internal: senior PhD students, postdocs, or faculty members. Attendance at these events has been robust and we will continue to offer them.</p>

<p>a broader audience. To attract a good attendance, we will offer a free lunch.</p>	
<ul style="list-style-type: none"> Balancing the workload. The School will develop a workload policy that specifies the teaching load of faculty members taking into account factors impacting the workload such as different level of graduate student supervision, involvement in large research projects, and class sizes. Our current workload policy considers only graduate student supervision. Using extensive consultation, we will develop a broader policy that is considered to be fair by the different groups of faculty members, including research and teaching faculty members, and has wide support. 	<p>This issue proved contentious. We held consultations regarding workload and drafted a policy. However, the establishment of quantitative teaching credits for specific activities, typically qualitative in value, was difficult. After examining the result of these consultations and policy debate, we have decided to not develop a teaching load policy based on a formula.</p>
<p>5. CS@Surrey</p>	
<ul style="list-style-type: none"> Developing a vision. SFU considers the Surrey campus as its main opportunity for growth and expects the Province to double the current 2500 FTE students to 5000 FTE in the near future, with the specific dates determined by the Province. The School currently has a clear vision for the undergraduate Software Systems program, and our Surrey program is doing very well for such a small group of faculty. In fall of 2013 the Software Systems program had 201 majors, over 60 Computing Science majors taking over half their courses at Surrey, and well-attended service courses, for a total of 944 students enrolled in courses offered by the program. We plan to expand that vision in two ways. First, we propose to partner with the Faculty of Health Sciences to offer a Health Informatics program at Surrey. Second, we will develop a plan for research and graduate training at the Surrey campus. The vision and the corresponding proposals will be developed in consultation with our faculty members, the Dean, the VPA, and other academic units at the Surrey campus. The process will be led by the School Director and the Associate Director, Surrey and will include a series of 	<p>Unfortunately, there have been very limited successes in the Surrey operations in the School of Computing Science. Undergraduate student demand in Surrey remains weak. Student applications to our Software Systems program (SoSy, Surrey) and Computing Science major (CMPT, Burnaby) are summarized below:</p> <ul style="list-style-type: none"> Fall 2012 (125 applications for SoSy, 689 for CMPT) Fall 2013 (133 applications for SoSy, 684 for CMPT) Fall 2014 (88 applications for SoSy, 869 for CMPT) Fall 2015 (118 applications for SoSy, 1103 for CMPT) Fall 2016 (128 applications for SoSy, 1415 for CMPT) <p>New student enrollments follow a similar pattern:</p> <ul style="list-style-type: none"> Fall 2012 (36 students enrolled in SoSy, 161 in CMPT) Fall 2013 (43 students enrolled in SoSy, 201 in CMPT) Fall 2014 (32 students enrolled in SoSy, 212 in CMPT) Fall 2015 (32 students enrolled in SoSy, 220 in CMPT) Fall 2016 (32 students enrolled in SoSy, 281 in CMPT) <p>Over the past 4 years, there has been a 100% increase in undergrad applications to our Burnaby CMPT major. Applications to the SoSy</p>

<p>special faculty meetings, with a focus on Surrey faculty members.</p>	<p>program are flat.</p> <p>The School is committed to meeting the demand for undergraduate education in computer science. However, this student demand is largely targeting our Burnaby operations.</p>
<ul style="list-style-type: none"> • Strong leadership. The position of the Associate Director, Surrey has been vacant for more than a year, but it has been filled as of September 2013. The new Associate Director will provide strong leadership and improve communication between the Surrey and the Burnaby campuses. 	<p>We have changed the Associate Director, Surrey position to the Software Systems Program Director. The mandate of the Software Systems Program Director is to direct the Software Systems (SoSy) program, including strengthening curriculum and increasing student enrollment in it, and to positively influence the systems curriculum in the CMPT major program as well. Innovations from our SoSy program have strengthened our CMPT major already (e.g. CMPT 125/127, 276) and we wish to continue the same based on the other excellent aspects of the SoSy curriculum.</p>



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MEMORANDUM

ATTENTION	Greg Mori Director, School of Computing Science	DATE	October 20, 2016
FROM	Glynn Nicholls Director, Academic Planning and Quality Assurance	PAGES	1
COPY	Uwe Glaesser Dean, Faculty of Applied Sciences		
RE:	External Review Update for the School of Computing Science		

As per Senate guidelines, the School of Computing Science is to report on progress being made in the implementation of the Action Plan that resulted from its external review in March 2013. This report will be presented to SCUP and Senate for information. The Director will be asked to attend the SCUP meeting to provide comment and answer any questions about the update on the Action Plan. The Dean may choose to attend the meeting at his discretion.

Please submit your progress report, using the attached template, by Thursday, December 1, 2016 to Bal Basi at bbasi@sfu.ca. Also attached, for ease of reference, is the Action Plan that was approved by Senate on January 6, 2014.

Although your external review took place prior to the requirement to develop educational goals and assessment beginning with the 2013-14 external review cycle, any progress being made in your School in defining program and/or course level educational goals for academic programs would be welcome in your progress report.

Please contact me at 2-6702, glynn_nicholls@sfu.ca, or Bal Basi at 2-7676, bbasi@sfu.ca, if you have any questions or concerns regarding the external review update process.

Attach.



MEMORANDUM

ATTENTION Senate Committee on University Priorities DATE November 25, 2013
FROM Dr. Martin Ester
RE: Action Plan of the School of Computing Science in response to the External Review Report

Attached, I am submitting the Action Plan of the School of Computing Science in response to the report of the External Reviewers 2013. While we have tried to focus on the major comments of the reviewers and to be brief in our responses, I would like to use this cover letter to outline the “big picture” from our point of view and to provide some context for the proposed actions.

Since the time of the previous External Review in 2006, CS enrollments have been growing strongly all over North America, driven by labor market needs of the IT industry. In our School, the number of undergraduate AFTEs has doubled from the academic year 2006/2007 to the academic year 2012/2013. Unfortunately, this trend has coincided with a substantial reduction in the number of faculty members, as well as the number of staff, TA support, and operating budget for laboratories. Within those constraints, the School has responded to the growing student demand by increasing the number of offerings as well as the class sizes of many core undergraduate courses. The External Reviewers confirm that the School offers very good undergraduate programs with excellent facilities and good TA support. The School has also developed two new programs in areas of special demand, a joint undergraduate program in Health Informatics with the Faculty of Health Sciences (expected to be launched upon approval of the extension of the Surrey campus), and a Professional Masters program in Big Data Science (expected to be launched in September 2014).

The External Reviewers confirm the research excellence of our School, mentioning a very clear positive trend of research activity and research funding and concluding that the School is in the “middle of the pack” of the top ten Canadian universities. This trend is largely due to the excellent faculty members that have been hired during the DTO initiative of the BC Government. The School is now aiming to acquire bigger research grants and research centers and to retain its top faculty members through chair positions.

A major challenge and opportunity for the School is to develop a vision for its research program at the Surrey campus in the context of the planned major extension of this campus.

Thank you very much for your attention, and I am looking forward to discuss the External Review Report and our Action Plan with you.

Regards,

Martin Ester, Ph.D.

EXTERNAL REVIEW – ACTION PLAN

Section 1 – To be completed by the Responsible Unit Person e.g. Chair or Director			
Unit under review School of Computing Science	Date of Review Site visit March 20 – 22, 2013	Responsible Unit person Martin Ester	Faculty Dean Nimal Rajapakse
<p><i>Note: It is <u>not</u> expected that every recommendation made by the Review Team be covered by this Action Plan. The major thrusts of the Report should be identified and some consolidation of the recommendations may be possible while other recommendations of lesser importance may be excluded. Should an additional response be warranted, it should be attached as a separate document.</i></p>			
1. PROGRAMMING			
1.1 Action/s (description what is going to be done):			
<p>1.1.1 Undergraduate:</p> <ul style="list-style-type: none"> • Discontinuing the Software Engineering specialist option. To focus our teaching in this area and to clarify our offerings to students, we plan to discontinue the Software Engineering specialist option that has been offered at the Burnaby campus and will refer interested students to the Software Systems program offered at the Surrey campus. • Instituting mandatory labs in 1st year courses. Mandatory labs for the key introductory course CMPT 125 are currently being developed and will be offered for the first time in Spring 2014. These labs will be three credit courses that run in parallel to the lecture-based courses. The corresponding lectures and labs will be co-taught by a team of two faculty members, preferably one teaching and one research faculty member. • Introducing a combined BSc/MSc program. In May 2013, the School passed a motion of approval in principle for creation of a concurrent Bachelor-Master's program in Computing Science. We will now proceed to design the program. • Introducing a "computational thinking" course for students of other programs. Such a course will offer an increasingly relevant introduction to "computational thinking" for students from a broad range of programs. We will design an attractive course, gradually build up enrollments, and apply for a Q-designation of the course. • Better support for the Women in Computer Science student group. While they have had unofficial faculty mentors, we will assign an official faculty mentor to our Women in Computer Science group. The faculty mentor will help with scholarship applications and liaise with faculty at SFU as well as with the local industry. This position will be considered as the internal service of that faculty member instead of the regular committee assignment. <p>1.1.2 Graduate:</p> <ul style="list-style-type: none"> • Streamlining our MSc portfolio. To streamline the portfolio of MSc programs, we will work to eliminate the unfunded MSc project option with the goal of offering only a funded research option (thesis or research project) and a non-funded course option. We have recently experienced an upward trend of the number of non-thesis applicants, which fits well with the new graduate co-op program. • Establishing the graduate co-op program. 			

A graduate co-op program began in January 2013. The grad co-op courses may be used for credit towards MSc degrees. PhD students may participate in grad co-op, but may not count co-op courses towards their course requirements. The program will be reviewed after two years to evaluate student and employer demand. The program is currently supported by a half-time co-op coordinator, which is sufficient for roughly 60 student work terms per year. We anticipate growing demand from an increasing number of course-based MSc students, which will require the upgrade to a full-time coordinator position.

- Reducing the dependency on a small number of source countries.

In order to reduce our dependency on applicants from China and Iran, and to diversify our graduate student population, we will actively strengthen existing relationships with universities in India (IIT Madras, Jadavpur University), Brazil (Universidade Estadual de Campinas), Germany (Technical University of Darmstadt, University of Bielefeld) and other countries. As a next step, we will explore the opportunities for exchange programs or even dual degree programs with these universities.

- Increasing the percentage of domestic and female students.

We will establish a "graduate programs visit day" for admitted top students. We will also promote our graduate programs more systematically, through classroom visits and undergraduate research projects including USRAs, to our own undergraduate student population. Our recent efforts with invited visits and offers of entrance awards to the very top domestic applicants have already led to an increase in the number of domestic and female students, and we will pursue these efforts more aggressively.

- Strengthening the graduate DDP with Zhejiang University.

To strengthen the recently (fall 2011) introduced graduate DDP and to recruit more Canadian students, we will increase the exchange of faculty members between SFU and ZU and strengthen the research collaboration. We are already in the process of establishing a joint research center in Big Data Science which will hold annual workshops etc. and support faculty members of both universities in joint research grant applications and industry collaborations.

1.1.3 Teaching:

- Establishing better relations with the student leadership.

We will invite representatives of the CS student groups to attend one Executive Committee meeting per semester, or on demand, to give them the opportunity to share student concerns and suggestions. In return, the Undergraduate and Graduate Program Directors may attend meetings of the student group executives. We will also consider holding an annual town hall to gather input on the student environment from all students.

- Assessing teaching.

We will develop guidelines to assess teaching in the context of the biennial salary review and of tenure and promotion applications that will include not only student evaluations but also other sources such as peer evaluations, student focus groups, teaching portfolios, and undergraduate research supervision. This process will be led by a committee consisting of teaching and research faculty members that will start its work in the fall 2013.

- TA budget.

We will include the full amount of planned (and required) TA expenditure in future budget submissions to the Dean's Office, so that TA funding will be placed on a secure basis to the extent possible.

- TA allocations.

Starting this September, we will assign a faculty member to allocate TAs to courses together with our Manager, Administrative and Academic Services. This faculty member will ensure that TA applicants have the required skills, including language skills, and that allocations match skills of TA applicants to TA positions.

1.2 Resource implications (if any):

- The School is currently at its teaching capacity. The offering of a new “computational thinking” course for students from a broad range of other programs will require the increase of our teaching capacity, in the short term through the hiring of limited term faculty, and in the longer term through the hiring of a number (depending on the three-year average enrollments) of continuing faculty members. The funding for such positions under the SFU budget model will have to be negotiated with the Dean and the VPA.
- The upgrade of the graduate co-op coordinator position from half-time to full-time will be funded through student co-op fees.
- The creation of a joint research center in Big Data Science with Zhejiang University will require additional funding for joint workshops as well as exchanges of faculty members and students.
- Broader assessment of teaching will require additional resources from the assessed faculty member (e.g., creation of teaching portfolios) and from the assessors (e.g. classroom visits). We plan to assign a few faculty members to a new teaching assessment committee as their regular service assignment. However, we will have to constrain the additional resources to a reasonable amount. The teaching assessment committee will require training and support from the SFU Teaching and Learning Center.

1.3 Expected completion date/s:

- All of the above actions will be implemented by the time of the review update in April 2016.

2. RESEARCH

2.1 Action/s (what is going to be done):

- Improving administrative support for large research grants.
With the increasing number and size of research grants, we will create additional administrative staff positions to support large research grants such as NSERC Create and NCE. These positions may be shared by multiple grants.
- Increasing advancement capacity.
FAS has only one full-time Advancement Officer position to serve three large, industry-oriented Schools. The advancement support will have to be increased to capitalize on the many opportunities in the CS/IT sector. In particular, the School needs and sees the potential for more endowed chairs and industry chairs, whose acquisition will require substantial advancement efforts.

2.2 Resource implications (if any):

- Administrative support for large research grants will be funded through these research grants and be coordinated by the School.
- The creation of additional FAS Advancement capacity will require corresponding funding from the Dean's or VP level.

2.3 Expected completion date/s:

All of the above actions will be implemented by the time of the review update in April 2016.

3. RESOURCES AND ADMINISTRATION

3.1 Action/s(what is going to be done) :

- Improving administrative staffing levels.
As covered in section 2.1, additional administrative staff will be hired to support the increasing number and size of research grants. As pointed out by the Reviewers, the administrative staffing levels are low for a unit of this size, in particular in the area of financial assistance. We will consider increasing the staffing level or, if an increase is impossible, re-organizing the job descriptions of the current staff members based on the needs in the various administrative areas.
- Reviewing the services of the FAS Student Affairs Unit.
Concerns have been expressed that the FAS Student Affairs Unit may not be able to keep up with the advising demands of CS students, and that the School's messaging is not getting delivered effectively in recruitment activities. These concerns will be reviewed and necessary actions will be negotiated with the Dean's Office. Improved communication is considered to be crucial to improve the services in the future. The School will assign a faculty member to liaise with the FAS Student Affairs Unit and provide better faculty and staff representation at events organized by the FAS Student Affairs Unit.
- Maintaining the School website.
We will take advantage of the SFU Content Management System to improve our web presence. We will assign a faculty member overall responsibility and authority to supervise and direct our website maintenance. Responsibility for routine maintenance and updates of areas of content will be assigned staff members of the School most closely involved in that area. Once these responsibilities are in place, the assigned faculty member will initiate a review of each section to ensure that content is up to date, well written and that all links are correct.

3.2 Resource implications(if any):

- As covered in section 2.1, administrative support for large research grants will be funded through these research grants and be coordinated by the School.

3.3 Expected completion date/s:

All of the above actions will be implemented by the time of the review update in April 2016.

4. WORKING ENVIRONMENT

4.1 Action/s(what is going to be done) :

- **Establishing a Colloquium.**
To strengthen the sense of community among faculty and graduate students, and to expose them to current research issues, we will establish a CS Colloquium with internal speakers, which will complement the already existing Distinguished Lecture Series featuring high-profile external speakers. The CS Colloquium will feature talks of selected faculty members and graduate students that are of interest and accessible to a broader audience. To attract a good attendance, we will offer a free lunch.
- **Balancing the workload.**
The School will develop a workload policy that specifies the teaching load of faculty members taking into account factors impacting the workload such as different level of graduate student supervision, involvement in large research projects, and class sizes. Our current workload policy considers only graduate student supervision. Using extensive consultation, we will develop a broader policy that is considered to be fair by the different groups of faculty members, including research and teaching faculty members, and has wide support.

4.2 Resource implications(if any):

- The food expenses for the CS Colloquium will be covered from the School's operational budget.
The new workload policy will likely lead to a reduction of average course load of faculty members which in turn may lead to a reduction in the number of classes offered by the School. By offering fewer sessions of our courses and fewer elective courses, this may be absorbed without reduction in the AFTEs.

4.3 Expected completion date/s:

- All of the above actions will be implemented by the time of the review update in April 2016.

5. CS@Surrey

5.1 Action/s:

- **Developing a vision.**
SFU considers the Surrey campus as its main opportunity for growth and expects the Province to double the current 2500 FTE students to 5000 FTE in the near future, with the specific dates determined by the Province. The School currently has a clear vision for the undergraduate Software Systems program, and our Surrey program is doing very well for such a small group of faculty. In fall of 2013 the Software Systems program had 201 majors, over 60 Computing Science majors taking over half their courses at Surrey, and well-attended service courses, for a total of 944 students enrolled in courses offered by the program.
We plan to expand that vision in two ways. First, we propose to partner with the Faculty of Health Sciences to offer a Health Informatics

Section 2 - Dean's comments and endorsement of the Action Plan :

The reviewers have commented positively on school's activities and recognize that Computing Science (CS) at SFU is one of the top schools in Canada. High reputation of the School is also confirmed by several international rankings that place the School amongst the top 150 CS schools in the world. The review team has identified several areas that require careful attention and effort over the next few years. These include the undergraduate and graduate programs, research, future of Surrey Campus programs, resources and student affairs.

With regard to the recommendations and action plan outlined by the Director, I am in agreement. I plan to work with the School to address challenges and issues identified by the visiting team. My comments on the key topics of the review report and Director's recommendations are given below.

Programming: The proposed action plan is acceptable. I am pleased to note that the School plans to discontinue software engineering option in Burnaby and move that focus to Surrey, strengthen interactions with students, further improve teaching and TA support, attract more female students, increase the diversity of graduate student population, introduce combined B.Sc./M.Sc. program and several other initiatives to improve the overall quality of its programs. In my opinion, the School has sufficient resources to implement the proposed actions. I encourage the School to further consolidate the senior elective courses to open up more teaching resources for lower level courses and new initiatives such as the computational thinking course. The School should launch professional graduate programs without further delay to generate revenue and increase industry interaction.

Research: The School has some of the top CS researchers in the world. There is room to increase the annual research income, especially large team grants. Recent success with an NSERC CREATE grant is a positive development. Additional staff positions for research support could be created by increasing annual research income and attracting more grants from industry. The Faculty will consider adding another advancement officer in 2014 subject to availability funds. This would help the school to increase its interaction with industry. The Faculty currently provides support for industrial liaison through a full-time staff position.

Resources and Administration: The School has a reasonable staff complement. However, the staff resources are divided between two campuses and it causes some inefficiencies. Centralized student services provided through the Faculty has improved student recruitment especially for CS programs but student advising has had some challenges due to several staff leaves of absence. FAS Student Services unit will report directly to the Dean effective January 2014 and a review of its activities will be done to improve student services.

Working Environment: Actions identified in this section are feasible. I encourage the School to implement the proposed work load policy as early as possible.

CS@Surrey: This is the main challenge facing the School. As recognized by the visiting tem, the current program is not sustainable. I disagree with the recommendation to add more faculty lines to this program as there is capacity in the current courses to accept more students. A careful review of School's Surrey activities is required as the identity of the undergraduate program is confusing and the research performance can be improved. In view of the continuing modest enrollment in SoSy, it is important to consider how a new program in Health Informatics will affect SoSy. There are also issues about the feasibility and success of the current graduate program in Surrey. Overall academic environment for graduate students is not as attractive as in Burnaby where the main activities of graduate program reside (graduate courses, major research labs, access to resources, etc). I encourage the School to consider consolidating its graduate program to Burnaby. The recommendation to collaborate with Mechatronics is an attractive suggestion and should be explored. I agree with the recommendation that no further permanent hiring for Surrey should be made.

program at Surrey. Second, we will develop a plan for research and graduate training at the Surrey campus. The vision and the corresponding proposals will be developed in consultation with our faculty members, the Dean, the VPA, and other academic units at the Surrey campus. The process will be led by the School Director and the Associate Director, Surrey and will include a series of special faculty meetings, with a focus on Surrey faculty members.

- Strong leadership.

The position of the Associate Director, Surrey has been vacant for more than a year, but it has been filled as of September 2013. The new Associate Director will provide strong leadership and improve communication between the Surrey and the Burnaby campuses.

5.2 Resource Implications(if any):

- The implementation of the resulting vision for CS@Surrey will require funding for new faculty positions to grow the existing Software Systems program and to establish any new programs. This funding will be provided upon approval of the expansion and the new programs by the Province.

5.3 Expected completion date/s:

The new Associate Director, Surrey started in September 2013.

All of the above actions will be implemented by the time of the review update in April 2016.

The above action plan has been considered by the Unit under review and has been discussed and agreed to by the Dean.

Unit Leader (signed) Name <i>M. Ester</i>	Date <i>Nov 25, 2013</i>
Title <i>Director</i>	

Faculty Dean



.....Nimal Rajapakse.....

Date

...November 25, 2013.....