York University Quality Assurance Procedures (YUQAP)
New Program Appraisal

External Appraisal Report on the Proposed New
M.A., M.Sc. and Ph.D. in Digital Media

Please provide feedback, as appropriate, on the evaluation criteria provided below.

External Reviewer(s)
Dr. Marek Hatala, Professor, School of Interactive Arts and Technology, Simon Fraser University, BC, Canada
Dr. Michael Neff, Associate Professor of Computer Science & Cinema and Digital Media, Chair of Cinema and Digital Media, University of California, Davis, USA

1. Outline of the Visit

The reviewers visited York University on March 2nd and 3d, 2017. The following people were interviewed:

- Alice Pitt, Vice Provost Academic
- Barbara Crow, Dean of Graduate Studies
- Shawn Brixey, Dean of AMPD
- Spiros Pagiatakis, Associate Dean of Research and Graduate Studies, Lassonde School of Engineering
- Program Faculty: Melanie Baljko, Mark-David Hosale, Matthew Kyan, Joel Ong, Don Sinclair, Nell Tenhaaf, Doug Van Nort, Graham Wakefield, Rob Allison, Petros Faloutsos, Michael Brown
- Graduate Students in Future Cinema II course
- Undergraduate students in the Digital Media program

As a part of the visit, the reviewers toured the following research and teaching facilities:

- Alice Lab for computational worldmaking (Graham Wakefield) http://worldmaking.github.io
- n-D::StudioLab (Mark-David Hosale) http://www.ndstudiolab.com
- DisPerSion Lab (Doug Van Nort) http://dispersionlab.weebly.com
- Bergeron Centre for Engineering Excellence (http://lassonde.yorku.ca/about-bergeron-centre)
- The Graphics and Media at York (GaMaY) Lab (Melanie Baljko, Petros Faloutsos and Matt Kyan) Lassonde Building
- Two flexible teaching spaces, one computer lab and one configurable studio/lecture space.

Prior to the visit, the reviewers were provided with the draft of the proposal and additional supplementary material.

2. General Objectives of the Program

- Is/are the program name and degree designation(s) appropriate?
- For graduate programs that wish to have a Quality Council endorsed field(s), are the fields indicated in the proposal appropriate?

The program name – Digital Media – reflects well on the program objectives and future graduate profiles. The degree designations are appropriate and consistent with established norms. No Quality Council endorsement is being sought for the program.

- Are the general objectives of the program clear and are they consistent with University and Faculty missions and academic plans?
The general objectives are well defined. There is a high degree of consistency between the objectives of the program and priorities set forth at the provincial and university levels.

3. Need and Demand

- Is there sufficient explanation of need/demand for the program?

The need for the program is clear and based on the requirements of several groups of stakeholders. First, there is a need for the unique type of Highly Qualified Personnel (HQP) that this program will produce. In general, the digital sector has difficulty finding the people they necessarily need for growth. This program will produce a particularly unique type of personnel that have both technical and artistic training, which is a background that provides a strong base for developing future forms of media that are likely to be economically important. The proposal provides evidence for this need through letters from Interactive Ontario, The Canadian Digital Media Network and Ellefson Technology Consulting. The proposal argues effectively that the program fills a unique and important niche in Ontario.

The faculty in the program have a critical need to work with graduate students in order to conduct their research. This need is not being satisfied within the current programs at York, especially for the faculty in Computational Arts. For those faculty members in EECS, the program would allow them to work with different types of students than those normally attracted to CS or Engineering schools; students with stronger art training and interests. The program will benefit from four CRCs that are either in place or in the process of being hired. Given this very substantial investment, it is important for these faculty to have an appropriate cadre of graduate students to work with.

The student demand for the program is argued based on a survey of current students and alumni, a comparison with similar programs such as the SFU School of Interactive Arts and Technology (SIAT), the availability of financial support through CRCs, as well as the general growth of digital media and the high appeal of fields such as gaming. All of this is encouraging data, although there may be an overreliance on recruiting students from the current undergraduate program. The anticipated student demand could be more fully articulated, both by providing more numeric data on students likely to enroll and by identifying related programs whose students may well be interested in such a graduate offering. Profiling the range of different students that might be interesting in the degrees will help ensure that flexible pathways are developed that allow them to enter the program.

As other similar programs in Canada depend to a large extent on recruiting international students (e.g. SIAT with over 60% international), the proponents should consider to what extent the provincial limitations placed on admitting international students will affect the program’s ability to reach projected numbers.

4. Program Content and Curriculum

- Does the curriculum reflect the current state of the discipline or area of study? If applicable, comment on the appropriateness of any unique curriculum or program innovations or creative components.

The curriculum is appropriate for the degrees and it is current with the field. Most of the classes fit into one of three categories: core classes, Digital Media classes or EECS classes, with some additional offerings from programs like Dance. The two core classes consist of a survey and research methods class along with a studio that is taken once during the Master programs and again during the Ph.D. The survey class serves an important function in the program and its structure could be more carefully articulated. The course covers a very wide set of topics and the intention appears to be to offer it as a research methods class, but this could be made more clear.

The Digital Media graduate classes (“depth courses”) are exciting and highly germane to the program. These will be very effective in supporting the research program and may also be interesting electives for students in other programs, such as EECS. It would help to articulate how frequently they will be offered to understand the resource implications and provide clarity to incoming students on what courses they can likely expect an opportunity to take.
There is a long and solid list of EECS graduate classes. It would help to articulate the background required by students in order to take these classes as students without a CS undergraduate degree (and even some with) might lack some of the expected preparation.

Integrating undergraduate and graduate offerings of courses is a reasonable tactic for maximizing what can be offered with limited resources.

- For undergraduate programs, comment on the appropriateness of the anticipated class sizes. For graduate programs, is there adequate evidence that each graduate student in the program will take a minimum of two-thirds of the course requirements from among graduate level courses?

All of the course requirements for each of the degrees are at the graduate level.

5. Program Structure, Learning Outcomes and Assessment

- Are the program requirements and learning outcomes clear, appropriate and in alignment with the relevant degree level expectations?

The proposed program requirements for MA, MSc ad PhD programs align with the relevant degree requirements. The learning outcomes are clearly itemized and supported by the curriculum structure. Both Master programs and PhD have suitable research requirements that will make both programs credible with respect to the programs’ research nature and ambitions.

The majority of students interviewed would consider entering a Master program to be better prepared for the workplace. The faculty imagine a range of trajectories, from artist to software developer. The proposal shows four example profiles for Master students. In addition, the proposal would benefit from explicitly identifying career path/roles the future graduates can fulfill across targeted industries; specifically highlighting the programs’ ability to develop competencies to succeed in such roles. The proposal would be strengthened by clarity in this direction both for internal focusing of program implementation and for marketing the program to applicants and employers.

- Comment on the appropriateness of the program curriculum and structure to support the program learning outcomes. For undergraduate programs, comment on the nature and suitability of students' final-year academic achievement in the program. For research-focused graduate programs, comment on the nature and suitability of the major research requirement(s).

The curriculum structure is sound. It contains an appropriate number of classes for such programs and combines breadth and depth.

In general, the courses will provide strong support for the major research requirements. The new DMG classes are very closely aligned with students’ likely research work and offer enough breath for students to also obtain complementary expertise. There are some issues that the program faculty may wish to consider:

- The faculty may wish to consider if too much is being asked of the core DMG 5010, particularly for the MA where it is providing both core technical literacy and historical/cultural literacy. These objectives could be divided between multiple courses.
- The faculty may also wish to consider the inclusion of a writing intensive, scholarly theory class to complement the more technical and production oriented offerings.
- The EECS classes appear to all be pre-existing courses. Will they be adapted in any way to this new audience? It would help to articulate how DM students will use these to forward their research work.
- If students come in without all of the expected background, what is the process by which they can make up particular deficits? Can the program identify a core set of classes that students should take if they are lacking comparable training?

- Are the methods and criteria for assessing student achievement appropriate and effective relative to the program learning outcomes?
The methods of assessment are appropriate and considered effective for measuring the achievement of learning outcomes. These include the assessment via courses, major research project for MA and MSc, annotated bibliography, comprehensive exam, thesis research proposal, and thesis defense for PhD.

**MA and MSc Programs**

The proposal differentiates between MA and MSc programs based on the course requirements and nature of the major research project (MRP), specifically using the research methodology used to conduct research in MRP. The reviewers are satisfied with the appropriateness of this distinction. We offer the following suggestions for implementation of the program and for improving timelines for individual students.

There are several key elements that contribute to timely completion of the program. The first group of concerns is about the timeline surrounding establishment of the supervisory relationship and advising students. The proposal posits that students will select four out of six courses in areas of their research. Hence the course selection to a large extent would require identifying the topic of MRP much earlier that envisioned in the proposal (i.e. 6 months prior to the defense). Next, it is proposed that the graduate program director works with each student in the first year to identify suitable courses. The reviewers believe that this aspect it unrealistic given the expected size of the program. Also, as identified in Section 3, there is a strong need and expectation that the MRP will contribute to the ongoing research program of individual faculty members. Typically, this means that students admitted to the senior supervision do not have a complete freedom in choosing their topic, rather a topic should contribute to the objectives of supervisor’s funded research. All three concerns could be addressed by considering appointing a permanent senior supervisor either at the admission time, or very early in the process. If this is not feasible, a temporary supervisor within an area of interest indicated in the student application should be appointed and guide the student.

The second element is establishing clear expectations for progress towards the degree and mechanism for getting students on track or, if student disengages from the program, for recommending withdrawal. The mechanism of the “switch committee” to periodically review progress is useful and can keep students on track, however consequences of non-progression are not clear. Additionally, we recommend a clear set of time-based guidelines to be developed, which will give the program ability to not only monitor the progress, but also to clearly spell out consequences. We recommend complementing the guidelines with a formal annual review performed in a face-to-face meeting by whole graduate caucus (i.e. faculty in the graduate group), with formally requiring students to correct deficiencies in their progress by stated deadlines. Such an annual progress review should apply to all students in the program, allowing all faculty to keep aware about all students’ progress and their research. Such a review process would also contribute to the consistency of the supervision across the program. It would also distribute responsibility for checking progress to the entire faculty and can help to avoid the challenge of the student’s lead supervisor being in the often opposing roles of chief advocate for the student’s work and chief enforcer of progress milestones.

**PhD Program**

The research and curricular requirements are consistent with the PhD programs elsewhere. The timely completion depends to a large extent on adhering to recommended timing for major milestones, in addition to having mechanisms in place that prevent deviations and correct for any delays. In this regard, we have identified several potential issues that should be considered in the proposal.

The supervisory relationship is critical for any successful PhD. In the fields such as Digital Media PhD students are central to the supervisor’s research and their research typically contributes to the work in the supervisor’s research program. Given such a close relationship, we recommend that the supervisory relationship is established at the time of admission with a clear commitment from the future supervisor. We do not recommend admission to the program with hope that the student will identify a supervisor after they join the program. The proposed limit of five semesters for establishing senior supervisor is not advisable. An early supervisory commitment will facilitate the advising on course selection, as well as early discussion about areas of research.

We offer several recommendations to the comprehensive examination process described in Appendix C. First, we believe that the student’s primary supervisor should be the one that is driving the administrative aspects of the comprehensive examination. The rationale is that the student is in a weak position of dependence on the committee, hence she is not the one that would be able to drive processes such as scheduling, which will
undoubtedly result in delays in many cases, jeopardizing timely completion. Rather we recommend that the senior supervisor approaches colleagues with request to serve on the comps committee.

To further streamline the comprehensive exam process, we believe that it is should be acceptable if the supervisory committee only guided the preparation of the reading list, without the involvement of the external comprehensive exam committee members. It is our experience that processes requiring coordination of various faculty members beyond the supervisory committee lead to delays in timely completion due to the difficulties in managing faculty schedules.

The final recommendation we want to make to the comprehensive exam is to consider separating the process of formulating the research questions from the exam process. The precise research questions can often be better formulated after the student completed their reading list and may require additional exploration beyond the knowledge of the field, e.g. considering the technical/infrastructure requirements for the proposed work, methods to be applied to the questions, including proposed data collection methods and analysis, etc. This is better facilitated within the dissertation proposal. A short deadline, e.g. one semester after the comprehensive exam, might be introduced into the timeline guidelines to facilitate timely formulation of the exact research questions.

As recommended above, the annual progress review by the whole graduate caucus should apply to PhD students as well, where the decision about the timely progress would be taken by the group.

- For graduate programs, comment on the appropriateness of the program length, including on how students’ time-to-completion will be supported and managed to ensure that the program requirements can be reasonably completed within the proposed time period.

The overall duration is appropriate, although PhDs may take longer than the anticipated four years. As mentioned above, it would help to formalize rigorous milestones, especially early in the program, to ensure that students are on track or can take corrective measures. There should be a clear process for documentation of progress or issues with progress.

Defining the thesis research area early will help in the selection of appropriate classes to support it.

- Comment on the appropriateness of the proposed mode(s) of delivery to meet the program learning outcomes.

The delivery methods are appropriate.

6. Admission Requirements

- Are the admission requirements appropriately aligned with the program learning outcomes?

To the extent that they are described, the admission requirements are appropriate for the program learning outcomes. However, it is important to provide significantly more detail on the background students should have in order to apply. It would help to articulate a list of particular skills and/or provide representative example courses that provide these skills, so students know if they are adequately prepared. This is particularly important for the MA and MSc degrees as both are open to students with degrees in digital media, computer science, an art program with a technology focus, or related areas. This covers a wide range of potential preparation. York offers a particular version of a Digital Media degree, but the field is still young and there is a diverse range of material covered in different versions of such degrees, so there may be significant diversity in the applicant pool.

Given that the set of students potentially interested in the new graduate degrees is quite broad, even just considering the three listed types of degrees, it seems needlessly restrictive to limit admission to students whose experience matches that of those who have studied digital media at York or in very similar programs. We suggest the program seriously considers the range of students they are open to admitting. A wider set of students can benefit from these programs and will also bring new perspectives and insights to the learning environment. However, such students may need to take additional courses or otherwise improve their preparation in order to succeed in the graduate program. It is important for the program to fully articulate the requirements and potential
pathways to achieve them in order for a more diverse pool of students to be able to bridge to the program requirements and succeed in the degree. In particular, a clear strategy and possibly a course(s) is needed to bridge students who may be lacking in computing background to the program and enable them to take courses offered by EECS.

- **Is there sufficient explanation of any alternative requirements, if any, for admission into an undergraduate, graduate or second-entry program, such as minimum grade point average, additional languages or portfolios, along with how the program recognizes prior work or learning experience?**

All three degree programs require a portfolio. The proposal should describe in greater detail what should be contained in these portfolios, along with listing potential examples that would meet the expectations of the admission committee. This will help students to calibrate their level of preparation and also to present appropriate material so their applications can be fairly considered.

7. **Resources**

**For all programs**

- **Adequacy of the administrative unit’s planned utilization of existing human, physical and financial resources, and any institutional commitment to supplement those resources, to support the program.**
- **Appropriateness of the collective faculty expertise to contribute substantively to the program.**
- **Participation of a sufficient number and quality of faculty who are competent to teach and/or supervise in the program, including qualifications, research, innovation and scholarly record.**

The proponents of the program, both from AMPD and EECS, collectively hold the expertise that is appropriate for the delivery of the program. The number of competent faculty involved in the preparation, teaching and supervision is sufficient to execute the proposal at the level of quality expected from the strong research-oriented graduate program. The faculty members have strong established research programs, have demonstrated strong scholarly records, and possess qualifications that are congruent with those needed to achieve program objectives.

The current complement of the faculty expected to deliver this graduate program is sufficient when fully deployed. However, the high involvement of CRCs in the Computational Arts and their reduced teaching load will likely challenge the delivery of the existing undergraduate program in Digital Media. This was discussed with the Dean Brixey, who indicated that 2-3 CLA faculty may help with the UG program delivery. When considering still continuous growth of the UG program, the Department Chair Sinclair expressed a need for 4-5 additional faculty lines to cover both the undergraduate and graduate program at steady state. A clear commitment from all levels to provide human resources is needed based on actual mandated course teaching responsibilities. We recommend developing an explicit plan with specific timeline for people hiring that corresponds to the growing needs of both programs.

- **Evidence that there are adequate resources (e.g. library, laboratory) to sustain the quality of scholarship produced by undergraduate students as well as graduate students’ scholarship and research activities.**

There is high quality research and teaching infrastructure either immediately available, or coming online soon, that will provide an excellent environment to deliver high quality programs and support high quality of scholarship for graduate students. The library resources are in place.

One concern we have is around seating spaces for graduate students. CA faculty labs are highly technology and space intensive, with research often utilizing the whole allocated space. This does not provide for a suitable seating areas for students not-directly involved in the ongoing research project within the labs. There should be a clear plan for where students will be seated.

**Additional criteria for graduate programs only**

- **Evidence that faculty have the recent research or professional/clinical expertise needed to sustain the program, promote innovation and foster an appropriate intellectual climate.**
The faculty involved in the graduate program have recent research and artistic practice expertise. There are significant research initiatives in place that will provide a vital environment for the graduate program. As mentioned before, there is a strong need for the graduate students to sustain these high-quality research initiatives.

- Where appropriate to the program, evidence that financial assistance for students will be sufficient to ensure adequate quality and numbers of students.

The newly established policy for graduate support forms a framework this program will operate under. There seem to be financial resources within CRCs programs to provide sufficient support to many graduate students. Students supervised by non-CRC faculty will depend on research funding of individual faculty members. This can potentially lead to disparity of support within the program. This is not uncommon, but needs to be considered and managed to maintain a healthy graduate student community. It is our understanding that in the new funding model if the support cannot be provided by the faculty members then the faculty as a whole (AMPD) will be contributing lacking resources. Given the strong support for the program by Dean Brikey this does not seem to be a concern. The large-scale cross-university initiatives were indicated as potential sources of additional financial support, but portions of those was not clearly committed to this program at this stage. An additional source of funding via MITACS, which might be highly relevant and given industry need also relatively easy to acquire. This was not considered by the proposal and may provide additional funding stream.

Overall, we are not concerned that, at least in short and medium term, lack of financial assistance would arise and impede adequate quality and numbers of graduate students.

- Evidence of how supervisory loads will be distributed, and the qualifications and appointment status of faculty who will provide instruction and supervision.

There appears to be sufficient supervisory capacity to deliver the program.

8. Quality of Student Experience

- Is the evidence of a program structure and faculty research that will ensure the intellectual quality of the student experience?

The program structure clearly supports the intellectual quality of the student experience. A part that was not articulated in the proposal and should be considered is how a healthy and stimulating graduate student community will be developed.

Two mandatory courses across the first two semesters will support an early formation of the connection within the intake cohort. Additional courses will provide further opportunities, not only within the program but also to other graduate students taking the courses, primarily in EECS and AMPD. However, given that the graduate students will be associated with different labs, more should be done to maintain the connection and enrich students’ experience. One suggestion brainstormed during our visit was an introduction of a graduate colloquium, which may be made mandatory for one or two semesters, and present talks from visiting or resident faculty that would form a basis for follow up discourse.

We also believe that given the disperse nature of students the AMPD should consider allocating a social space for students within the program to connect with each other informally. Given one reviewer’s experience in the similar program (SIAT@SFU), even within a highly collocated lab environment, the requirement for social space came as the top request when students were interviewed on their learning experience. Since then such a space was created with lounge and long-table seating and equipped for light refreshments use. The space functions as a hub for exchanging ideas between students and for informal and semi-formal gatherings.

Note: Reviews are urged to avoid using references to individuals. Rather, they are asked to assess the ability of the faculty as a whole to deliver the program and to comment on the appropriateness of each of the areas/fields of the program that the university has chosen to emphasize, in view of the expertise and scholarly productivity of the faculty.
9. Other Issues

10. Summary and Recommendations (Note: The responsibility for arriving at a recommendation on the final classification of the program belongs to the Appraisal Committee. Individual reviewers are asked to refrain from making recommendations in this respect.)

The proposal articulates a well-developed vision for a new graduate program in Digital Media, supporting MA, MSc and PhD programs. This effort leverages off York’s substantial strengths in both the arts and computer science. The program will produce a unique form of highly qualified personnel with deep technical and artistic knowledge. Such graduates will be well positioned to contribute to digital media industries in Ontario. The program is also critical for the faculty within Computational Arts to be able to realize the potential of their research programs and provides important added breadth for faculty in EECS. Physical and personnel resources are largely in place to realize the vision. In sum, the proposal suggests a high quality and welcome addition to York’s, and Ontario’s, graduate program offerings.

The review committee did identify a number of recommendations for further strengthening the program. These are developed in detail above and briefly summarized here:

- Please clarify the description of GS/DMG 5010 3.0 Foundations of Digital Media to explain which of the breadth of topics will be included in a single offering of the class and how this will be formulated.
- For Masters students, consider appointing a supervisor at the time of admission or very shortly after the start of the program. If this is not possible, a temporary supervisor would be an alternative. For PhD students, consider establishing the supervisory relationship at the time of admission.
- To ensure that students are progressing effectively towards their degree, develop timeline guidelines and consider including a formal annual review in the program.
- For the comprehensive exam, we recommend that the student’s primary supervisor drive the administrative aspects of the exam process, along with other suggestions above that may improve the process.
- The precise background required of students applying to the program should be more clearly elaborated.
- Consider opening the program to a broader set of applicants with appropriate courses suggested to bridge students to these degrees where their background training may be incomplete.
- Guidelines should be developed for the material students should include in their application portfolios.
- A plan for course staffing should be completed in order to assess the adequacy of staffing levels and add resources where needed.
- A plan to provide appropriate office space for graduate students should be developed.
- The proposal should address steps to develop a healthy graduate student community.