1. Introduction
KMDI’s mission is to promote the science and practice of knowledge media design through collaborative interdisciplinary and human-centered research, teaching and practical innovation. The KMDI community extends out from the University of Toronto to encompass joint projects with research and business organizations in the public and private sectors. Our entrepreneurial operations team supports the research community by identifying potential collaborators and working to access new funding opportunities in areas such as healthcare, data analytics, online education, and information design. Students in the Collaborative Program are a vital part of the KMDI community. KMDI’s graduate courses bring together students from several different disciplines who are interested in the interaction between technology, media and society.

Director’s Statement/Executive Summary
The Institute has had a busy six months since the last report. In addition to the three seminars announced in the October 2013 report we also had three KMDI seminars in the winter with three excellent speakers. Professor Ali Mazalek, Canada Research Chair in Digital Media at Ryerson University gave a presentation on her research in tangible and embodied interation conducted over the past few years at the MIT Media Lab, Georgia Tech, and most recently Ryerson University. In February Professor Ben Shapiro gave an entertaining seminar on principled design of online learning environments. Finally, in March 2014 we had a presentation from Dr. Danielle Lottridge about her postdoctoral research with the late Professor Nass at Stanford University. Danielle gave a fascinating talk on the psychology of multitasking.

During the first half of the year the KMD Collaborative programme went through a self-study and review with the School of Graduate Studies. The CP passed with flying colours and our next review is planned for 2020. In the meantime we have been working with Dr. Steve Szigeti to develop a plan for overhauling and modernizing the KMD CP curriculum. We have developed a new approach to the curriculum that reduces overlaps between courses both within the CP and with the Faculty of Information and other faculties and departments. We are also continuing with our focus of teaching courses to larger numbers of students and using core faculty rather than sessional instructors whenever possible.

We will be discussing the CP curriculum, as well as a number of other issues, at the KMDI Retreat on June 23. The retreat will be held at Victoria College and will include a number of representatives from the various KMDI stakeholder communities including faculty and students at the University of Toronto, Faculty from other Universities, and representatives from industry and from other organizations. During the retreat we will be covering a number of important topics with a series of highly interactive sessions. Professor Eugene Fiume, former Chair of the Computer Science Department at the University
of Toronto, and incoming Director of the National Centre of Excellence on Graphics and New Media, will be the keynote speaker. The KMDI Retreat on June 23 will be followed up with a report on future directions for the institute and the retreat and report will be an important components in preparing for an upcoming review of the Knowledge Media Design Institute in the next year or so.

Aside from these major events the life of the institute continued with a poster session in April that celebrated student work during the spring courses, as well as a number of workshops. Other activities included assisting the Faculty of Information in developing and running the KMD Concentration and assisting with the design of the KMD concentration capstone course which is targeted for launch in fall 2014.

One final point to note is that KMDI video records all the seminars and it has launched a YouTube channel to make those recording widely available. We now have all six of the 2013-2014 KMDI seminars available online.

KMDI continues to move forward with a focus on its role as a centre for teaching and research related to innovative design, focusing on the collaborations between people, practices and technology. It will be a busy summer as we hope to have a new strategic plan formulated by the fall.

2. Previous Year

2.1 Activities: October 2013 – May 2014

KMDI Seminar Series 2013/2014
In the 2013/2014 academic year KMDI reinstituted its speaker series, which focus on bringing together individuals from academia and industry whose work is based in knowledge media design to share their research with our community. We offered six lectures during the year, hosting three per semester.

FALL 2013

Eleni Stroulia - Dept. of Computing Science at the University of Alberta and NSERC/AITF Industrial Research Chair on Service Systems Management

TOPIC – Smart Condo: A Sensing Platform and Evaluation Tool for Independent Living
Stroulia’s discussed her Smart Condo project which examines aging populations with a desire to live a home who may have chronic, yet manageable conditions. The technology being developed is a sensor-based infrastructure for non-intrusively monitoring people at home and analyzing the collected data to extract information about their activities.

Robert Woodbury – Simon Fraser University

TOPIC – Alternatives: A New Fundamental Structure for Computer-aided Design
Woodbury discusses the need for tools that allow for multiple alternatives, rapid sketching and
exploration over multiple visible, editable alternatives. He discusses his developed program CAMBRIA (after the Cambrian explosion of life) and a language to support alternatives SHIRO. In this talk Woodbury presented design arguments for working with alternatives and show how CAMBRIA and SHIRO implement some of these ideas.

**Tom Furness** - University of Washington, Electrical Engineering, Mechanical Engineering, and Human-Centered Design and Engineering

**TOPIC – Cobwebs in a Virtual Brain**

With a career spanning 48 years, Professor Furness discussed his explorations and development of technology for getting bandwidth to the brain and between brains. His work has encompassed fighter cockpits, virtual reality, retinal displays, educational tools, medical simulators, pain, phobias, molecular modeling, scanning fiber endoscopes and entertainment systems.

**WINTER 2014:**

**Ali Mazalek** - Associate Professor in the RTA School of Media at Ryerson University, and Canada Research Chair in Digital Media and Innovation

**TOPIC - Design for Creativity | Creative Designs**

In her lecture Dr. Mazalek spoke on the over 15 years trying to get digital technologies to fit better into her physical world and life, rather than letting them drag her into the pixelated depths of her computer screens. Mazalek provides some perspectives on the emerging fields of tangible and embodied interaction, and highlight work from her lab that supports creativity and expression across the physical and digital worlds, for art and science disciplines alike.

**Ben Shapiro** - Tufts University, Departments of Computer Science and Education, and faculty at the Center for Engineering Education & Outreach

**TOPIC – Principled Design of Online Learning Environments**

Dr. Shapiro discuss the value-laden choices that researchers must confront in order to construct and study online environments for learning. These choices are both pedagogical (concerning the design of how people interact in order to teach and learn) and ethical (concerning both who benefits and who loses by different system designs, as well as how researchers should study online learning while respecting participants’ to informed consent and privacy).

**Danielle Lottridge** – Stanford University & San Francisco State University, Human Factors PhD

**TOPIC: Psychology of Multitasking**

In her talk Dr. Lottridge discusses chronic multitaskers perform worse on core multitasking skills despite feeling more confident in their abilities. She reviewed three projects on the psychology of multitasking: a browser redesign and field study (Lottridge et al., 2012), an experiment examining the surprising effect of distractors on essay writing (chronic multitaskers do better in certain conditions!), and preliminary results of an fMRI study.
The talks were well received and have become highlights on the KMDI calendar. All of the lectures in the speaker series have been recorded and archived and can be found on the KMDI website (http://www.kmdi.utoronto.ca/talks/) and on the KMDI YouTube channel (https://www.youtube.com/channel/UCoAWoYkU6QeIHOjml_x3MTg). We believe that continuing these talks and having them available online brings back a much appreciated KMDI tradition of sharing knowledge and research in the field of knowledge media design.

**Joint Workshop Series: KMDI/Inforum/Semaphore**

This past academic year KMDI, along with the Inforum and Semaphore, joined forces and resources to offer a variety of workshops under the umbrella of the “iSkills” workshops series. We partnered on workshops relevant to KMD Collaborative Program Students, offering budgetary support and administrative resources. In the 2013/2014 academic year we offered the following workshops jointly with our partners:

- Design Basics
- Intro to Inkscape
- Intro to InDesign
- Intro to Illustrator
- Intro to Photoshop
- 3D Printing
- Introduction to APP building using Phonegap Intro CSS
- Java Script and Raspberry Pi Hack-a-thon.

**KMDI Poster Sessions**

This year KMDI ran two poster sessions, at the end of each semester in the fall and winter. KMDI also introduced for the first time the **KMDI Award for Course-Based Research in Knowledge Media Design**, which comes with an award of $500.00 for the winning individual or team poster. The poster session has become an important part of re-building the KMDI and collaborative program community and we will continue to run the sessions in coming academic years. Since the poster sessions are an important showcase for KMDI teaching, we are working on putting in place the governance to make participation in the poster session a mandatory component for completing the collaborative program requirements.

**SGS Review – KMD Collaborative Program Self Study**

On December 3rd, 2013 the KMD Collaborative Program submitted its final Self Study report to the School of Graduate Studies for formal review. In April of 2014 we received the official response from SGS, and noted concerns. SGS commended the KMD program for its ability to maintain and grow through the transition into the Faculty of Information in 2009 and during a difficult period of time while the institute searched for a new director. As has been the case in the past, SGS noted its concern with a
lack of “core faculty” in the collaborative program and concerns with core KMD courses being taught by sessional instructors. Additionally SGS was concerned about possible redundancy of the KMD Collaborative Program given that the iSchool has created a concentration in Knowledge Media Design.

- In response to SGS we addressed the concerns on sessional lecturing by noting that although presently some core courses are taught by sessional instructors they do not develop curriculum. Core faculty currently teach KMD 2001, 2002, and 2003. In future we are planning for core faculty to teach KMD 1002 and to be more involved with KMD 1001.

- On the topic of core faculty we informed SGS that we are planning a strategic planning retreat this summer (June 23rd) to bring together Collaborative Program stakeholders to further explore and implement revised learning outcomes for the CP program, and to encourage further involvement by core faculty in KMD courses.

- Regarding overlap and redundancy between the KMD collaborative program and the KMD Concentration we believe that this problem has arisen because of the way that the concentration has been structured. We have suggested to the Faculty of Information Dean, and Registrar, that the concentration should require the collaborative programme as a prerequisite, so that it is not in direct competition with the CP. We want to avoid overlaps with the concentration while also promoting synergies. One area of synergy involves providing our CP students with an opportunity to participate in INF 1601, the capstone course for the KMD concentration. We also note that the Director of the CP program is also responsible for the KMD Concentration (Professor Anthony Wensley).

Stating satisfaction with our report and responses to concerns raised, Vice Provost Brian Corman has officially approved the successful completion of the KMD Collaborative Program self study. The program will be reviewed again 2020. If any faculty or staff would like to see the self study report and responses please feel free to contact Zoë Jaremus (KMDI Coordinator) z.jaremus@utoronto.ca

2.2 KMD Collaborative Program
The Collaborative Program in KMD continues to draw students interested in interdisciplinary collaborative design work relating to problems of knowledge media design, management and evaluation. The CP program continues to grow and its courses are generally well attended.

Curriculum Development
One of the main objectives of the KMD Program Committee this past year was to develop a standardized curriculum and syllabus template for each of its courses. As a central step in the process of redefining the learning outcomes of the Collaborative Program we have tasked Dr. Steve Szigeti, a long time associate of KMDI and an instructor on the Collaborative Program, to review all the current Collaborative Program course offerings and provide recommendations concerning a revised curriculum that will serve the needs of our students over the next ten years. When the report is completed it will be
reviewed and revised by the CP committee before being submitted for broader review by the KMDI community. We will further explore and implement revised learning outcomes for the CP program in the KMDI retreat on June 23. We see it as a mark of success that the innovative topics in user-centred design and rapid prototyping that KMDI pioneered more than a decade ago at the University of Toronto have now become core parts of many disciplines. In our strategic planning we will continue to innovate not only in terms of design and research methods, but also in terms of applications and practice. Our goal is to give students the tools and skills to innovate. In addition to an emphasis on innovative and user-centred design we expect that the revised curriculum will also emphasize a strong set of core research methods and practices that support not only research but also a variety of approaches to innovative design. A full report on proposed changes to the curriculum will be available later this summer.

Enrollment:
In the spring of 2013 the Program Steering committee decided to move applications acceptance to ongoing basis, instead of once or twice per academic in order to make the program more accessible.

As of May 2014 KMD CP has accepted 15 new students to the Collaborative Program.
Breakdown:
5 – OISE (CTL)
4 – Mechanical and Industrial Engineering
4 – Faculty of Information
2 – Architecture

The goal for the 2014/2015 Academic years was to have between 35-40 new enrollments and we are currently on track to achieve this goal as we are receiving further applications on an ongoing basis. In an effort to increase enrollment this Fall KMDI staff and Faculty will be making presentations about the Collaborative Program to its collaborating units during orientation week. One of the main problems for our program is awareness from students. We hope these presentations will help with that.

Courses:

Winter 2014:

- **KMD1002H: Contexts and Practices**
  Tangible and Embodied Technologies: Supporting New Forms of Personal Activity and Social Interactions
  Co-Taught by Professor Jim Slotta, Mike Tissembaum (PhD Candidate), and Rebecca Cober (PhD Candidate)
  Enrollment = 22
As part of the process of making KMD courses more convenient for student schedules we are extending our course offerings so that they are taught in the summer as well as the fall and winter. With the KMD 1001 course offered in the first summer session of 2014 we have begun the process of converting our flagship KMD 1001 course into a course on research methods in knowledge media design. Our goal is to eventually make it one of the strongest research methods courses on campus and perhaps the only one with a focus on design and the design process.

Our commitment to curriculum renewal is also seen in the repurposing of the KMD 2002 course as a Big Data course focusing on Open City Data (working with the Toronto Open Data team). If the Big Data course goes well then we are considering adding a new Big Data course to the KMD offerings (e.g., as KMD 2005). Meanwhile our current plan for KMD 2002 (subject to approval by participants at the Retreat) is to have it a more industry focused user-centred design course and a stepping stone towards the KMD Concentrations Capstone course.

Planned Courses for 2014/2015

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<tr>
<th>FALL 2014</th>
<th>Instructor</th>
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<tr>
<td>KMD1001: Fundamental Concepts</td>
<td>TBD</td>
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<tr>
<td>KMD1002: Contexts and Practices</td>
<td>Mark Chignell</td>
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<tr>
<td>KMD2001: Human Centred Design / INF2169</td>
<td>Andrew Clement</td>
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<tr>
<th>WINTER 2015</th>
<th>Instructor</th>
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<tr>
<td>KMD2002: Technologies for Knowledge Media</td>
<td>TBD</td>
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<tr>
<td>KMD2003: Knowledge Media and Learning</td>
<td>Jim Slotta</td>
</tr>
<tr>
<td>KMD2004: Knowledge Media Culture and Society</td>
<td>TBD</td>
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3. Objectives/Plans for the upcoming year

KMDI is currently fulfilling the main requirements of its mandate. It is running a successful collaborative program and teaching multidisciplinary, and design-relevant courses that appeal to a broad range of students from across the campus. It is also consolidating its role as a meeting place for discussions and activities relating to innovative design and it has re-established the KMDI Seminar Series as a prominent forum on campus for research presentations by external speakers.

This section of the report is necessarily tentative since we expect to revise are plans for the future based on feedback and input from KMDI stakeholders attending the KMDI retreat on June 23. With that proviso in mind, here are some tentative objectives for the upcoming year.

Our goals for the upcoming year are to continue the process of moving KMDI to the next level where it functions as a major player in the design community. We will continue teaching innovative and attractive courses to a large number of students from a variety of backgrounds and disciplines. We will continue to ensure that courses are taught wherever possible by experienced instructors on a multi-year basis, and with a consistent core curriculum that is design-relevant.

We are also looking to increase research funding and research activity within KMDI. We see this as a challenging goal that will take time to implement given the resources available to us. Steps that we plan to take include becoming more engaged with industry and with research funding agencies, identifying a research focus on a relatively small set of “hot topics” that fit within the KMDI mission and that address timely societal challenges, and setting up an advisory board to assist in identifying opportunities for research, collaboration, and funding.

As noted in our previous report we are looking to enhance and rationalize our strategies for communicating about, and promoting, the institute. This will be one of the topics that we address at the retreat. In addition to methods used now or previous, such as the KMDI Digest and Newsletter, KMDI Technical Reports, and the KMDI website we will also look at other options such as one or more blogs, and articles or workshops about knowledge media design. In addition to publications, we also promote KMDI through receptions and other events and we will look for cost-effective ways to enhance social interaction and networking within the Institute.

Ongoing and Planned Programming:

**KMDI Strategic Planning Retreat**

On Monday June 23rd, 2014, KMDI has planned a full day retreat in an effort to collaborate and engage with us in strategic planning and future envisioning of KMDI. Invited attendees include faculty members across the University of Toronto, York University, Ryerson University, OCAD University and professionals from industry and other organizations.

KMDI has come a long way since its foundation by Ron Baecker, and it is now a leader in interdisciplinary education at the University of Toronto. We want to build on this excellent foundation while making changes and advancements towards the future. Our goal is to bring together a variety of
stakeholders in a discussion and exchange of ideas that can lead to a shared vision and a plan for reinvigorating the institute and reinventing it as an international centre for research and teaching on innovative design in a broad spectrum of areas.

The purpose of this day long retreat is to bring together new as well as current KMDI stakeholders, to invigorate our membership and build connections, and to create a strategic plan outlining an exciting new set of goals. The main points of focus for the days breakout session will be:
- Organization Building
- Research/Partnerships
- Education
- Branding

The keynote address will be by Professor Eugene Fiume of the Department of Computer Science. Professor Fiume is a former chair of the Computer Science Department, Co-Director of the Dynamic Graphics Project, and the next Scientific Director of the National Centre of Excellence on Graphics and New Media.

KMDI Holiday Party and Poster Session
In an effort to continue to re-establish the institute and program KMDI will be hosting its fourth poster session event in the coming 2014/2015 academic year. The event will show case our students excellent work and celebrate the end of another year. It was KMDI’s goal to host a poster session at the end of each academic term, however this year, due to budgetary constraints will be only running one poster session in the Winter Term 2015. Although we would welcome industry funding to allow us to run the second poster session/Holiday party in the fall.

Workshops
KMDI and the Inforum are currently in the planning stages for workshops to be offered this coming 2014/2015 academic year.

Speaker Series
We are currently in the process of finalizing the speakers for the 2014/2015 KMDI Speaker Series. Two speakers already confirmed for the fall are Katharina Reinecke (Professor of Information and Computer Science at the University of Michigan) and Anabel Quan-Haase (Professor of Information and Media Studies at the University of Western Ontario).

KMDI Alumni and Member Talks
In conjunction with our larger speaker series, KMDI will also be hosting smaller talks featuring KMD Collaborative Program graduates discussing where they are now, their work, research and how KMDI helped them get there. We will also be asking KMDI members to contribute by giving presentations on how their research relates to knowledge media design. We are hoping to launch this secondary series in the Fall of 2014, further increasing the amount of interaction and involvement within the institute.