

2011/12

ANNUAL REPORT

A CANADIAN NETWORK OF
CENTRES OF EXCELLENCE

Graphisme, animation et nouveaux médias
grano
Graphics, Animation and New Media

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The NCE Secretariat manages four national programs: Networks of Centres of Excellence (NCE); Centres of Excellence for Commercialization and Research (CECR); Business-Led Networks of Centres of Excellence (BL-NCE); and Industrial Research and Development Internships (IRDI). Through research partnerships between academia, industry, government and not-for-profit organizations, NCE programs turn Canadian research and innovation into economic and social benefits for all Canadians. Since its inception in 1989, the NCE has helped launch over 100 companies; supported the development of more than 36,000 highly qualified professionals; and invested more than \$1.5 billion to fund research, commercialization and knowledge translation to enhance the lives of Canadians.

GRAND gratefully acknowledges the support of:



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EXECUTIVE MESSAGE

Message from
the Chair of the Board
& the Scientific Director

GRAND is at the mid-point of its first five-year term. By all measures GRAND is thriving. It has brought together top digital media researchers throughout Canada. But GRAND is not about research per se. It is about making a positive impact on Canada and the world. Our goal is to make a difference in people's lives. This means that we need to strengthen and further develop our collaboration with key organizations from the receptor communities including companies, NGOs and government agencies. Key to that collaboration is the strengthening and mobilizing of GRAND's Knowledge and Technology Exploitation and Exchange (KTEE) activities. As we start the planning phase of the renewal process for a second five-year term, KTEE will be an especially important aspect of everything that GRAND does.

In this year's annual corporate report you will see the range of activities underway in GRAND. There will be a particular focus on how these activities will lead to greater impact on the receptor community through research and networking

partnerships, internships, workshops, international involvement and commercialization and technology transfer.

We will also introduce you to some of the people who make all of this happen, including researchers who are leading projects in GRAND and who are working to ensure that the results of their research give rise to benefits for the Canadian digital media community.

These past two-and-a-half years have been an exciting period of rapid growth for GRAND during which we have built a strong network that spans across Canada. Every project involves multiple universities and often multiple disciplines. Especially noteworthy are the collaborations formed within GRAND between researchers from all three of the research communities served by Canada's Tri-Council (CIHR, NSERC and SSHRC). In addition, a number of

researchers are actively engaged with the art and design community through the participation by Canada's top three art and design universities.

Over the next two-and-half years we expect to see GRAND continue to evolve through stronger ties with its industry, government and NGO partners, increased emphasis on KTEE activity and further development of its receptor-focused approach to digital media research. While we look forward to seeing the benefits derived from research done in previous years, we will also continue to adapt our research program to ensure further such benefits in future years.

—C. Ian Kyer,
Chair, Board of Directors, GRAND

—Kellogg S. Booth,
Scientific Director, GRAND

CORPORATE PROFILE

GRAND is a research network and knowledge mobilization engine that addresses complex issues in digital media and transforms multidisciplinary research into user-centred solutions. GRAND explores the use and application of digital media in a variety of settings including entertainment, healthcare, education, environmental sustainability and public policy.

As a federally funded Network of Centres of Excellence GRAND supports 34 research projects divided into 5 cross-pollinating themes involving approximately 130 researchers and 250 students and postdoctoral fellows at 25 universities across Canada with nearly 60 industry, government and nonprofit partners.

OUR VISION

Through technology solutions, training the next generation of talent and encouraging a robust policy environment, GRAND plays a pivotal role in supporting Canada's National Digital Economy Strategy.

OUR MISSION

- Integrate and enhance Canada's thriving digital media sector through development of new or revised policies and practices



- Focus research and commercialization efforts towards solution-driven products and services

- Facilitate research across the broad spectrum of digital media by linking computer scientists and engineers with artists, designers and social scientists

- Develop opportunities for researchers and partner organizations to join together to build more constructive working relationships

- Teach and mentor the next generation of digital media innovators

OUR THEMES

GRAND addresses 5 themes: New Media Challenges and Opportunities ([nMedia](#)); Games and Interactive Simulation ([GamSim](#)); Animation, Graphics and Imaging ([AnImage](#)); Social, Legal, Economic and Cultural Perspectives ([SocLeg](#)); and Enabling Technologies and Methodologies ([TechMeth](#)).



ORGANIZATIONAL CHART

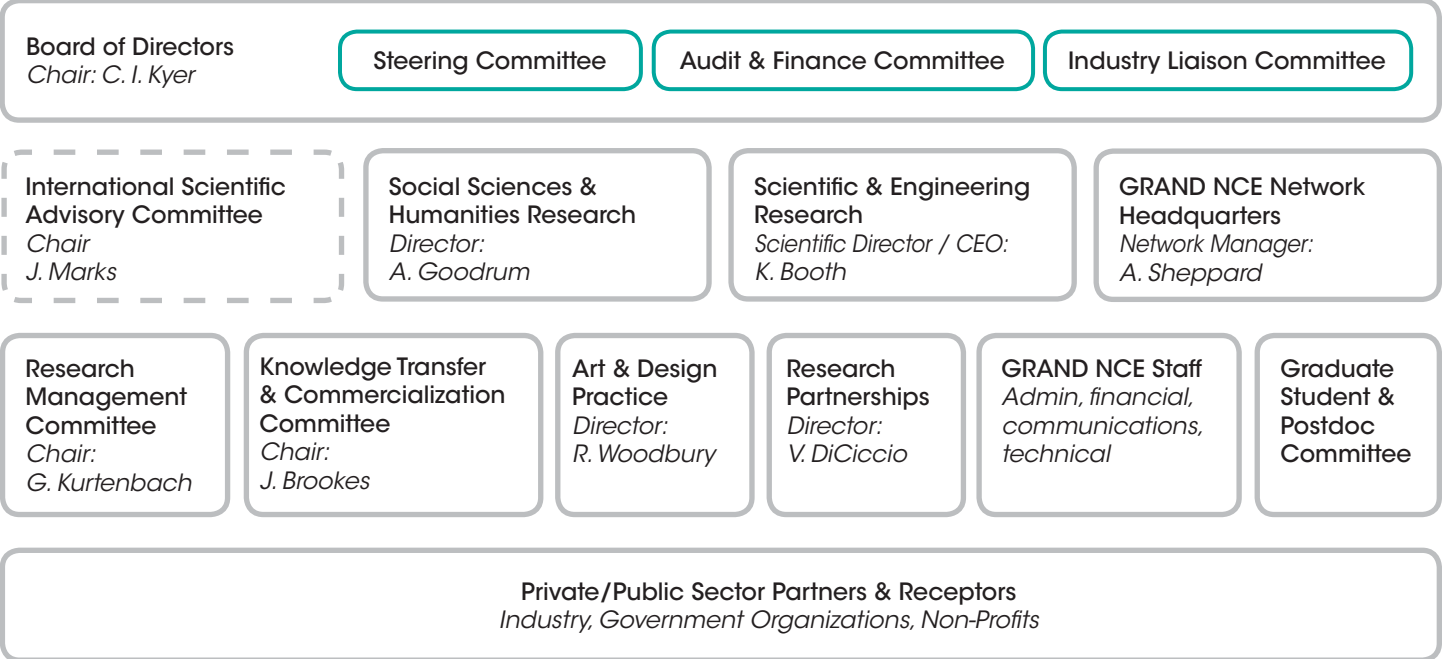




PHOTO CREDIT: JOSEPHINE DERUBE

2011 / 12 EVENT

HIGHLIGHTS

GRAND hosts and sponsors networking events throughout the year and supports the participation of network collaborators in conferences and workshops, all of which promote opportunities for researchers and partner organizations to work together. Some of GRAND's most notable events are featured below.

GRAND 2011: ANNUAL CONFERENCE (MAY 12-14, 2011)

The **GRAND Annual Conference** showcases the range of research and innovation in the network covering a broad spectrum of digital media topics and issues. It also provides an opportunity for project collaborators, students and postdoctoral fellows to connect with industry guests, while sharing and learning about advancements and new applications in digital media.

Attended by **379** researchers, students, industry guests and others, GRAND's second annual conference at the Vancouver Convention Centre featured an impressive line up of speakers, posters and demonstrations, presentations and

Work In Progress (WIP) papers from HQP. Plenary speakers included **William (Bill) Buxton**, Principal Researcher, Microsoft Research and GRAND's 2011 **Canadian Digital Media Pioneer**.



BILL BUXTON AT GRAND 2011

GRAND PEAKS PROGRAM

Initiated in 2011, the **GRAND Peaks Program** connects researchers with community receptors through workshops and summits focused on targeted advances in graphics, animation

and new media. Peaks participants explore design, technological, commercial, social, economic, legal and cultural questions relevant to GRAND. As a forum for knowledge exchange, Peaks events offer a competitive edge for organizations engaged in commercializing research and for graduate students and other HQP in building valuable academic and industry connections.

In June 2011, GRAND co-hosted the **Stereoscopic 3D (S3D) Film and Digital Media** conference at Simon Fraser University, followed by a series of S3D Centre Meet-ups and Master Classes held in Vancouver and Burnaby throughout January and February 2012. An outcome of the event was a new GRAND project in the emerging S3D field: **New Directions in Moving Image Technology and Aesthetic (MOTIVA)** to be launched in 2012.

GRAND was a sponsor of the **2011 Montreal Games Incubator** held during the summer of 2011 at Concordia University's TAG centre. Hosted by Concordia and Dawson College, the event brought together independent game creators, designers, artists and programmers with industry mentors from all aspects of game design, to develop experimental games, exchange ideas and network.

At the **Bellairs Computer Graphics Workshop**, held in St. James, Barbados, GRAND network investigators and other international experts in the animation and geometry communities, met to present and discuss challenging problems in their fields with a special emphasis on related research projects in GRAND. This was the third Bellairs Workshop, which provides a venue for researchers where the cross-fertilization of knowledge in modeling and animation can be of benefit.

The **Integrated Parametric Modeling and Performance Analysis Workshop** provided advanced training for graduate students and design professionals in the application of new parametric modeling and energy analysis to architectural design. A total of 46 Canadian graduate students and 18 Canadian construction industry professionals participated in two three-day workshops held in Toronto and Vancouver that were linked via a pilot video-conferencing system.

GRAND co-sponsored an open lecture and software training **Workshop on Text and Social Media Analysis** hosted by the University of British Columbia's School of Library, Archival and Information Studies (SLAIS). Up for discussion were the tools and techniques for the collection and analysis of social media, email and other textual content. Stuart Shulman, President and CEO of Texifter and Founding Director of the Qualitative Data Analysis Program (QDAP) lead the workshop.

In October, Bill Kapralos (University of Ontario Institute of Technology) and Elena Stroulia (University of Alberta)

participated in a planning meeting for **CART (Contraception Access Research Team)**. Involving clinicians, care providers, social workers and technologists, the CART team discussed next steps in developing a long-term program to improve the health of marginalized and vulnerable women and their families through high-quality family-planning knowledge and services.

GRAND CAFÉS

GRAND Cafés are regional HQP-driven events where students and postdocs can meet, network and learn about each other's projects in GRAND. Each Café's agenda is set by the student organizing committee to reflect the needs of the local group. Brainstorming exercises, guest speakers, lab and facility tours and other interactive activities round out the day.

In August, eleven students and postdocs from five partner universities attended the first **GRAND Café @ SFU**, held at the School of Interactive Arts + Technology (SIAT). The meeting included presentations and demonstrations of GRAND projects.

Two Cafés were planned for the summer of 2012: **GRAND Café @ Ryerson**, to be held in July, will be an all-day event that includes a demonstration of the hardware and software prototypes currently under development at Ryerson University's Centre for Learning Technology;

... A COMPETITIVE EDGE FOR ORGANIZATIONS ENGAGING IN COMMERCIALIZING RESEARCH...

GRAND Café @ Concordia, to be held in August, will involve participants in the GRAND/Funcom Games Initiative - a pilot internship program with Montreal game developer Funcom - who will present their game prototype to students and faculty from local universities, as well as industry guests. GRAND students will also be invited to present their latest graduate research.





WESTERN ECONOMIC DIVERSIFICATION (WD) ACTIVITIES

GRAND leverages its 2011 Western Economic Diversification (WD) investment to create commercialization initiatives in British Columbia, Alberta, Saskatchewan and Manitoba. These initiatives are directed towards the transfer of technology to industry, the creation of start-ups and the hosting of events that bring together network researchers and businesses. The pro-

gram also helps inform the digital media community about GRAND's activities.

GRAND's initial engagement with receptor communities through the program involved three WD co-funded workshops held in Calgary (March 1), Edmonton (March 2) and Winnipeg (March 5). The workshops featured student and faculty presentations on their research and networking activities. Contacts made through the workshops have subsequently led to a number of new partnerships that are now underway.

OTHER HIGHLIGHTS

GRAND was a sponsor of the **2011 ACM/Eurographics Symposium on Computer Animation (SCA)** at the University of British Columbia's Vancouver campus. The SCA is the premiere forum for innovations in the software and technology of computer animation. The single-track program and emphasis on community interaction makes SCA a valuable venue to exchange research results.

In May, GRAND was a sponsor of the Doctoral Consortium at the **ACM CHI 2011** (Conference of Human-computer Interaction) in Vancouver. The consortium provided an opportunity for doctoral students to explore and develop their research interests in an interdisciplinary workshop under the guidance of a panel of distinguished researchers.

Vancouver's first **Design Thinking unConference** held over two days in August was also co-sponsored by GRAND. A collaboration of the LinkedIn Design Thinking Group and Emily Carr University of Art + Design, the event was created to advance a wider conversation on design thinking and build a community of practitioners. Following a series of roundtable discussions, the "unconference" format allowed participants to pitch discussion sessions that other participants could choose to join.

In March, visual analytics researchers from Boeing, Canada and Brazil met in São Paulo for the first **Brazilian Visual Analytics (BRAVA)** workshop. The initiative, sponsored by Boeing, Mitacs and GRAND and supported by Federal University of São Carlos (UFSCar), was organized to promote international cooperation in this field of research. GRAND researchers from Dalhousie University, OCAD University, Simon Fraser University and The University of British Columbia participated in the workshop.

...EVENTS
THAT
PROMOTE
SHARING
AND
LEARNING...



AWARDS & ACHIEVEMENTS

Alexandra Fedorova (Simon Fraser University) was awarded a 2012 Sloan Research Fellowship in computer science. There were 126 Sloan Fellowships awarded across North America, with only seven awarded in Canada in all eligible disciplines. These two-year fellowships are awarded yearly to researchers in recognition of distinguished performance and a unique potential to make substantial contributions to their field.

Sheelagh Carpendale (University of Calgary) was awarded a 2012 NSERC E.W.R. Steacie Memorial Fellowship. The award recognizes outstanding and highly promising university faculty who are earning a strong international reputation for original research. Carpendale is an international leader in data visualization and interactive tabletop displays.



Eugene Fiume (University of Toronto) and **Gord Kurtenbach**, Director of Research at Autodesk, were awarded the 2011 NSERC Synergy Award for Innovation for the 20-year collaboration between Fiume's Dynamic Graphics Lab and industry partner and design software leader Autodesk (Toronto). The award recognizes achievements of university-industry collaboration in the natural sciences and engineering.

The Association for Computing Machinery (ACM) named **Ronald Baecker** (UToronto) an ACM Fellow for his work in human-computer interaction and animation. Baecker along with 45 ACM members were recognized for their groundbreaking research contributions to computing that have led to innovations and advancements in the field.

The Canadian Association of Computer Science / Association d'Informatique Canadienne (CACS/AIC) awarded **Joanna McGrenere** (UBC) an Outstanding Young Computer Science Researcher Prize in March 2012 – one of three awarded that year. She is also a recipient of an NSERC Discovery Accelerator Supplement in the 2012 Discovery Grant competition, as were GRAND researchers **Alla Sheffer** (UBC) and **Sheelagh Carpendale** (University of Calgary).

Caroline Whippey (University of Western Ontario) is a 2011 recipient of the American Society for Information Science and Technology (ASIS&T) New Leaders Award. The award identifies individuals that have potential for new leadership in the American Society of Information Science and Technology.

Vincent Levesque, Louise Oram and Karon MacLean (UBC) along with **Andy Cockburn** (University of Canterbury, New Zealand); Nicholas Marchuk, Dan Johnson, J. Edward Colgate, Michael Peshkin (Northwestern University, U.S.A) received a Best Paper Award at ACM CHI 2012 for their paper "Enhancing Physicality in Touch Interaction with Programmable Friction." The award recognizes the top 1% of publications submitted to the ACM Conference on Human Factors in Computing Systems (CHI). Cockburn is one of the international Collaborating Network Investigators participating in GRAND.

PhD student **Jonathan Gagnon** and Associate Professor **Eric Paquette** (École de technologie supérieure de l'Université du Québec) won Best Paper Award at the CGI (Computer Graphics International) Conference in 2011 for their "Procedural and interactive icicle modeling" article on icicle formation modeling for computer graphics applications.



profile

RON University of Toronto

B A E C K E R

Ron Baecker walks into his lab at the University of Toronto each morning with one question on his mind: How can we use technology that will allow people to age gracefully?

Regarded as one of the 60 Pioneers of Computer Graphics by ACM SIGGRAPH, Baecker is also a distinguished researcher in human-computer interaction. He is known internationally for opening up new research areas that have set the agenda for successors. His recent interest in aging-focused research—in part inspired by his own personal experiences—is arguably no exception.

From his desk in the Technologies for Aging Gracefully Lab (TAGlab)—a research node in GRAND's INCLUDE project—founder and director Baecker works with other researchers across Canada to find ways to help the elderly and those with special needs lead more social, autonomous lives through technology.

By all accounts their work is having an impact on people's lives.

For example, individuals with severe speech impediments can now order tickets at a theatre, or ask a mechanic to check the brakes on a car, using a new smartphone app called "MyVoice" (aka "Talk Rocket Go.") Utilizing geo-location software to determine a user's exact location, such as a car dealership or a grocery store, the app suggests words, phrases and sentences appropriate for the social context. It's small, easy to use, and allows users to communicate fluidly and fit in socially.

MyVoice is one among a diverse range of projects at TAGlab that involve experts from computer science, engineering, psychology, sociology, gerontology and graphic design, as well as clinical professionals. Recent advancements in digital media, such as computers, smartphones and tablets, have provided many new opportunities for the lab.

"[At TAGlab] we see a need and then try to figure out what technology would be the simplest and best suited to that need," says postdoctoral fellow Mike Massimi, who has worked on several TAGlab projects. "That's [Ron's] approach and it seems to work."

It's also GRAND's approach. Baecker previously led NECTAR, a six-university NSERC strategic research network and GRAND predecessor. A number of former NECTAR researchers helped organize GRAND—in part to continue looking for ways to marry digital media technology to people's needs in new and interesting ways. Baecker's TAGlab initiative is an excellent example of how GRAND research is helping improve the lives of Canadians.



profile

Simon Fraser University

ALEXANDRA FEDOROVA

The future of computing is in parallelism, but how to make it work efficiently is the challenge. For Alexandra Fedorova, it's also the key to making the benefits of computer power truly global.

Alexandra Fedorova leads the systems research group at SFU and is a co-director and co-founder of the Systems, Networking and Architecture (SYNAR) research lab. Her core research is in computer power consumption: how to make processors, which are notorious energy gluttons, use system resources more efficiently. Her work has explored new algorithms that leverage the capabilities of multicore processors to boost computer performance while minimizing the environmental impact.

Video games and interactive media are the kinds of performance-hungry applications targeted by Fedorova's research. Working with collaborators in GRAND's PLATFORM project and industry partner Intel, she's developing tools to enable high-quality interactive media while accelerating developers' productivity. Game companies such as EA have

taken notice, along with Oracle, Google and ST Microelectronics.

Fedorova anticipates her research will have far-reaching benefits in other areas including e-health. Although she's tackling perhaps the most difficult problems in parallel computing, she sees her research as essential to creating fast and inexpensive computing power that will bring about worldwide benefits.

"It is exciting to think that we have only scratched the surface of what computers can do for us," she says.

Just six years after completing her PhD from Harvard, Fedorova is already a star in her field. As a 2012 Alfred P. Sloan Foundation Fellowship recipient, she recently joined an elite group of

up-and-coming researchers of groundbreaking science - many of whom (if past Sloan fellows are any indication) may go on to win Nobel prizes or other significant awards.

Fedorova also gives back to her profession as a mentor and public speaker, promoting interest in computer science and engineering among women and underrepresented groups. In recognition of her outreach and outstanding research contributions, she received the Anita Borg Early Career Award in 2011. She is the second GRAND researcher to win the award in its eight-year history, a testament to the calibre of the researchers in GRAND and their dedication to training the next generation of highly qualified personnel in digital media.



PARTNERSHIPS THAT ACCELERATE AND LEVERAGE RESEARCH

Partnerships with industry and other receptor organizations are integral to GRAND's research projects. Partners provide resources, expertise and direction required to accelerate research outcomes and put them on the market.

GRAND reaches out to its partners and collaborators through a broad-based platform of initiatives and programs that aim to expand the network and fully utilize its connections.

Thanks to a recently initiated program with **Western Economic Diversification Canada (WD)**, GRAND is better positioned to attract potential partners (small- and medium-sized enterprises) in British Columbia, Alberta, Saskatchewan and Manitoba. The two-year outreach, commercialization and technology transfer program expects to develop nine technology prototypes, conduct 40 technology demonstrations and bring nine technologies to market. In the reporting period, three workshops were held (in Calgary, Edmonton and Winnipeg) to promote GRAND research

and connect students and faculty with industry.¹

The WD investment also helped GRAND add Commercialization Manager **Mark Salopek** to its staff. Through his industry contacts, Salopek works with other commercialization specialists to determine industry needs and develop business opportunities for GRAND research. Salopek has also worked closely with NCE partner Mitacs in enrolling GRAND HQP in the Mitacs-Accelerate internship program, with future involvement expected with other network researchers. GRAND has been a member of **Mitacs (formerly MITACS)** since 2010.

East of Manitoba, GRAND's Director of Research Partnerships **Vic DiCiccio** fosters interactions between companies and academic researchers to transfer ideas and students and encourage

research exploitation. DiCiccio, also the director of the University of Waterloo's Institute for Computer Research (ICR), works with researchers in GRAND to initiate collaborations that deliver research results to partners, and he helps to secure additional funds to bolster GRAND-related research.



VIC DICICCIO AT CHI 2011

In 2009, GRAND researchers at Waterloo received an **Ontario Research Fund - Research Excellence (ORF-RE)** award from the Ontario Ministry of Economic Development and Innovation to work

on Digital Media Enabling Technologies at Sheridan College's Screen Industries Research and Training (SIRT). SIRT's collaborations with Ontario's screen industries and practitioners have opened up areas for innovation in virtual and real-time production for film, gaming and television where Canada can excel.

One of GRAND's success stories arose from helping SIRT adapt game engines to previsualize virtual characters and special effects, while shooting live action. GRAND graduate student Lesley Northam created a Real-Time Effects framework (RFTX), software that can be used for planning, pre-visualization and interworking between game environments and film animation and special effects software. She is working with Toronto-based Side Effects Software, creators of the Houdini procedural animation and special effects tool for films, to help broaden their entertainment production capability.

Also within the ORF-RE project, GRAND researchers are working on a **Google Focused Research Award**, valued at \$900,000, to investigate context-aware social media. This effort combines three research challenges to achieve better context- and location-aware apps on mobile devices: understanding user preferences for smartphone interactions, innovative algorithms that safeguard user privacy and collection and exploitation of user data to "read the user's mind," increase relevance and eliminate social network spam.

In other research further east, professor **Sam Fisher** at NSCAD University along with researchers at Dalhousie University and McGill University are using advanced motion capture systems to automatically focus cinematic camera lenses in real time—a technique that provides greater accuracy and flexibility over manual "focus pullers." This work has the potential to increase artistic expression, especially in combination with 3D films and the higher frame rates that are possible with the newest digital projectors.

Another significant initiative to strengthen ties between researchers and community receptors is the **GRAND Peaks Program**, introduced in 2011. Peaks Summits bring together senior-level stakeholders to develop GRAND's strategy and objectives, while Peaks Workshops promote dialogue among researchers, industry partners and other professionals through seminars or courses on focused topics related to GRAND research. Seven Peaks workshops² were offered in this reporting period that engaged participants from the independent game sector, the video games industry, media and cultural industries, international experts in animation and geometry, as well as health care clinicians, care providers and technologists.

Within Canada's digital media community, GRAND maintains close ties with two Centres of Excellence for Commercialization and Research (CECR): **CDMN (Canadian Digital Media Network)** and **Wavefront**. CDMN has a strong relationship with GRAND; we are planning concurrent 2013 annual conferences in Toronto to increase industry-university networking in tandem with Canada 3.0. Wavefront and GRAND also work closely together; both organizations are located in Vancouver and share many of the same industry partners, as well as regularly coordinate the cross-promotion of events and activities.



...PARTNERSHIPS
ARE INTEGRAL
TO GRAND'S
RESEARCH
PROJECTS...

¹ See 2011/12 Event Highlights for more information. ² For a list of Peak events see the 2011-12 Event Highlights.



profile

BARRY

WELLMAN

University
of Toronto

Far from making us isolated, Barry Wellman's analysis of networks shows how our emerging wired culture offers unprecedented potential for people to reach out to each other.

Barry Wellman has been studying computer networks as social networks since well before the advent of Facebook and Twitter. His pioneering work has been highly influential in the analysis of personal community and social support and cybersociety. He's also the founder of INSNA (the International Network for Social Network Analysis).

Currently, Wellman is the S.D. Clark Professor at the Department of Sociology and director of UToronto's NetLab: a virtual laboratory that links scholars and collaborators around the world researching computer, communication and social networks.

Among the lab's projects led by Wellman is NAVEL—GRAND's self-reflective analysis of the network's research and management culture. Its goal is to both evaluate how well GRAND's collaborative research is managed and expand

our understanding of the complex nature of networked organizations.

As part of his research, Wellman has incorporated findings from his sociological investigations on the impact of the digital revolution into a new book entitled *Networked: The New Social Operating System*, which he co-authored with Lee Rainie, Director of the Pew Internet and American Life Project. They show how we are moving towards a "new social operating system" called networked individualism triggered by a "triple revolution" – the rise of social networking, the capacity of the Internet to empower people and the connectivity of mobile tools.

Unlike those who assert that online social networks are making us insulated and lonely, Wellman and Rainie argue that network individualism is expanding personal relationships beyond

households, workplaces and neighborhoods to more disperse, remote social circles: "People are not hooked on gadgets—they are hooked on each other." This new social operating system also offers new ways to solve problems and meet social needs by liberating and empowering individuals through technology to a far greater degree than in the past.

The book is seen by many to provide a new theoretical framework, backed by substantial evidence, for analyzing networked society. It is an example of how GRAND research is exploring the social consequences of digital media and informing public policy decisions by providing insights into how people's day-to-day lives are influenced by the digital media revolution.

A black and white portrait of Jen Whitson, a woman with long dark hair, smiling slightly. The portrait is partially overlaid by a large red circle on the right side of the page.

profile

JEN

Carleton
University

W H I T S O N

From Internet surveillance to gamification, digital labour to social change games, Jen Whitson is probing many aspects of games and technoculture to explain how digital technology impacts and shapes us.

Jen Whitson is more than just a video game enthusiast. As a doctoral student in sociology at Carleton University and future postdoctoral fellow at Concordia University's TAG (Technoculture, Art and Games) research centre, much of Whitson's research has examined the development, design and culture of digital games and play.

While sociological research often analyzes games themselves, or studies player interactions, in Whitson's view those studies often fail to include direct input from the people directly involved in the game development process. This input is critical to finding out how games are actually made and why they are made.

This helps explain the motivation for Whitson's most recent project, spearheaded by TAG's Bart Simon (the lead in GRAND's DIGILAB project): an eth-

nographic study of game developers. For ten weeks, Whitson tracked a team of intern developers at Montreal game studio Funcom to document the team's creation of a game from start to finish. Her study will help reveal how development teams solve design and technical problems, which is of interest to GRAND collaborators at Funcom.

"We have other GRAND related ethnographies in the works, but given that it's the game industry, these are all top secret for now," says Whitson.

Whitson has also worked with GRAND's PLAYPR team at Carleton's Hyperlab to build playful locative apps. Collaborating with architects and archivists, Whitson's team recently built two interactive apps and a website for the Virtual Museum of Canada. One app offers 3D models of Ottawa and the Rideau Locks as seen during the 19th century that

enrich visits to the City and canal with historical information.

Whitson's upcoming postdoctoral work at Concordia will evaluate game incubators and independent studios as viable escapes from the constraints of mainstream development. She will also assess whether the gamification movement will live up to its much publicized promise of "making real-life tasks more like a game."

Of great potential interest to industry, Whitson's highly original cultural research into game development and technology is a direct result of her involvement in the GRAND network. During her postdoctoral research she will collaborate with researchers in digital humanities, computer science, information studies and sociology using many of the connections she made through GRAND.



RESEARCHER SHEELAGH CARPENDALE
PHOTO CREDIT: RILEY BRANDT/UNIVERSITY OF CALGARY

RESEARCH THAT RESPONDS TO THE NEEDS OF INDUSTRY AND CANADIANS

GRAND works continually to mobilize research that addresses real-world problems and provides benefits to Canadians. The following are some of the highpoints from a crosssection of collaborative projects in GRAND.

An increasing number of projects in GRAND concern **Clinical and Health Care** research or include researchers from health-related disciplines. **Ron Baecker's** (UToronto) **Technologies for Aging Gracefully** is one initiative comprising a number of projects. Another is **Diane Gromala's** (SFU)

collaboration with medical researchers to develop treatments for people who suffer from chronic pain. Using a **"sonic cradle,"** Gromala's team is utilizing immersive media and meditation as a therapeutic tool for psychological self-regulation. Gromala's paper describing the research was accepted at the ACM CHI 2012 conference.

GRAND and NCE **NeuroDevNet** are continuing their \$500,000 co-funded **NEUROGAM** research project launched in 2010. The joint project uses computer game technology to improve central nervous system (CNS) functioning and assist in the diagnosis and treatment of children with brain disorders such as cerebral palsy and fetal alcohol spectrum disorder (FASD).



SFU GRADUATE STUDENT JAY VIDYARTHI EXHIBITED THE SONIC CRADLE AT THE TEDACTIVE 2012 IN PALM SPRINGS, CA. PHOTO CREDIT: SFU.

Karon MacLean (UBC) and colleagues are looking at ways to utilize haptics in toy pets to help monitor a child's emotional state during therapy sessions. Their prototype **"smart fur"** was featured in the *New York Times* article "32 Innovations That Will Change Your Tomorrow."

In the areas of **Digital Games and Interactive Media**, GRAND and top independent MMO game developer Funcom will pilot a ten-week, hands-on program at Funcom's Montreal studio that employs undergraduate and graduate interns from a range of disciplines to develop a working prototype for an existing game concept and design. GRAND HQP **Jen Whitson** (Carleton



University) will also track the interns' progress in a pilot ethnographic study of game development culture - the results of which are of high interest for collaborators at Funcom.

Also of interest to the game development sector is **Alexandra Fedorova's** (SFU) work in parallel computer processing (profiled above). In interactive media research, **Roel Vertegaal** is developing exciting prototypes of a "paper computer" that anticipate commercial applications for flexible new thin-film technology and e-ink.

At Dalhousie University professor **Derek Reilly** and his students have developed an interactive art installation called "**Tweetris**" that combines full body "Tetris" with Twitter. Exhibited at art events and both gaming and HCI conferences, the popular game provides a model that HCI designers can use to create new interactive systems that involve the whole body.

In **Social Sciences** research, University of Toronto sociologist **Barry Wellman** (UToronto) completed his book (co-authored with Lee Rainie) *Networked: The New Social Operating System*, published by MIT Press. The book has gar-

nered much praise from commentators in academia and elsewhere and is already considered a highly significant publication in the field of social network studies.

A new development in **Information Visualization** is a unique numerical typeface called "**FatFont**" that represents its quantitative value by the font weight or ink amount of each number. A project involving University of Calgary computer science professor **Sheelagh Cpendale** and fellow collaborators, FatFont improves visualizations of numerical data by combining the symbolic and visual aspects of numbers. The project was featured in the science news weekly, *New Scientist* and on the website for popular tech magazine, *Wired*.

Collaborators **Yannick Thiel**, **Karan Singh** and **Ravin Balakrishnan** (UToronto) are continuing their development of "**Sketch-based interfaces**" that provide more natural ways to create 2D and 3D models. This research has many important applications in computer animation, illustration and computer-aided design software.





profile Dalhousie University

D E R E K

R E I L L Y

Through imaginative projects that intersect computing and social sciences with art and design, Dalhousie professor Derek Reilly is exploring new ways ubiquitous technology can support everyday living.

No longer confined to the desktop, our interactions with computing technology now occur almost anywhere. At Dalhousie University, professor and HCI Lab co-director Derek Reilly is exploring this reality with new forms of physical-digital interaction.

A recent example is the interactive art exhibit Tweetris, (in GRAND's SHRDSP project) involving faculty and students from Dalhousie, University of Toronto and OCAD University. Tweetris players move their bodies into various positions to match Tetris brick shapes or "tetrominos" shown on a large display screen. Snapshots of the players are then tweeted and become blocks for another game of Tetris played in real-time at a nearby kiosk, or on mobile devices. Successfully launched at Nuit Blanche as part of Toronto's 2011 LEITMOTIF exhibition, Tweetris has entertained participants at Digifest, GamerCamp and TEI 2012.

For researchers, Tweetris shows how the physical surroundings can impact a player's bodily interactions with the game and how low-fidelity cues (like tetrominos) can elicit, without prematurely constraining, a player's whole-body interaction style — a potentially useful protocol for designers of similar interactive systems.

With project Limber (in PLAYPR), Reilly and collaborators are using gaming elements and ambient feedback to promote healthy behaviours within office environments. Jokingly described as "the gamification of sitting down", Limber uses sensors to monitor an individual's seated posture throughout the day and to track how often he or she stretches or gets up from the seat. Based on their movements, players are rewarded (or penalized) through a point system.

By having workers track their performance over time and compare scores with col-

leagues, researchers will be studying how Limber's deployment in targeted office environments can influence and encourage healthy behaviour at work.

A former faculty member at OCAD's interdisciplinary Digital Futures Initiative and postdoctoral researcher at Georgia Tech's GVU, Reilly is quite at home in GRAND's network. He collaborates with experts in computing science, psychology, sociology and anthropology and derives inspiration from art and design disciplines. He attributes his projects' success to an appreciation of the value systems and shared goals of different disciplines.

"I've come to understand that interdisciplinary collaboration is critical in order to build compelling interactive experiences," says Reilly, "and to convert these experiences into research outcomes." His participation in the GRAND network is making these kinds of collaborations eminently achievable.



profile

L O L A W O N G

University of
Western Ontario

What makes a YouTube video 'go viral'? To find out, PhD student Lola Wong is exploring key attributes of popular user-generated content that could make potentially valuable creative content realize its value on the marketplace.

'Going viral' is a social phenomenon that predates user-generated content (UGC) websites such as YouTube and Flickr. But these sites offer an unprecedented capacity to circulate news, media and ideas to millions in minutes. What fascinates Lola Wong, a second year PhD student in the Library and Information Science program at UWO, is why some content, such as a particular video, app or photo, stands out from other online media in explosive popularity.

Wong's initial work in GRAND (with PNIs Sam Trosow and Jacquelyn Burkell) was identifying successful UGC models and needed policy infrastructure. Now her focus is on viral media and whether "virality" is due to random or predictable factors. If predictable, Wong hopes to identify those features of certain UGC - in the content itself or the 'buzz' generated about it - that propel it to viral

status. The results will help our understanding of the influences of social and commercial forces on UGC and inform better policies for stimulating innovative content and help content creators commercially leverage their digital products.

Wong is also working with Abby Goodrum through GRAND's NEWS project and Jacquelyn Burkell through PRIVNM project. Both projects have given Wong perspectives into how and why information is produced and distributed through online and social media.

A former member of GRAND's Graduate Student Advisory Committee, Wong is now a co-chair of its successor, the Graduate Student and Postdoc Committee (GSPC), alongside University of Alberta PhD student Neesha Desai. A student-led initiative, the GSPC represents students and post-

docs in GRAND and organizes networking events and other activities that foster research opportunities.

As co-chair, Wong is helping students and postdoctoral fellows in GRAND realize the important role the network can play in their current and future research and industry work. With the help of the GSPC members, she continues to promote GRAND and connect HQP with students, researchers and industry partners across Canada.

"My opportunities with GRAND have demonstrated the value of making connections beyond the classroom and beyond the lab," says Wong. "It isn't just about presenting your research, it's about sharing your research with colleagues you might not have known you had."



PROVIDING HQP WITH A COMPETITIVE ADVANTAGE

GRAND is committed to delivering the results of its research program through the network's graduate students and postdocs. Much of the development of GRAND's HQP (Highly Qualified Personnel) is attributable to mentors such as UBC computer science professor **Joanna McGrenere**, whose first three doctoral students and first postdoc now hold full-time faculty positions. GRAND continues to refine and expand on initiatives that develop the HQP talent and position them for leadership roles in their field.



Some of GRAND's graduate students and postdoctoral fellows participate in the **Mitacs-Accelerate program**—Canada's top research internship program. Nine interns in Victoria BC, for example, worked with partner Intel developing new applications and data structures for multicore hardware. Mitacs-Accelerate connects high potential interns across all disciplines with companies from all sectors.

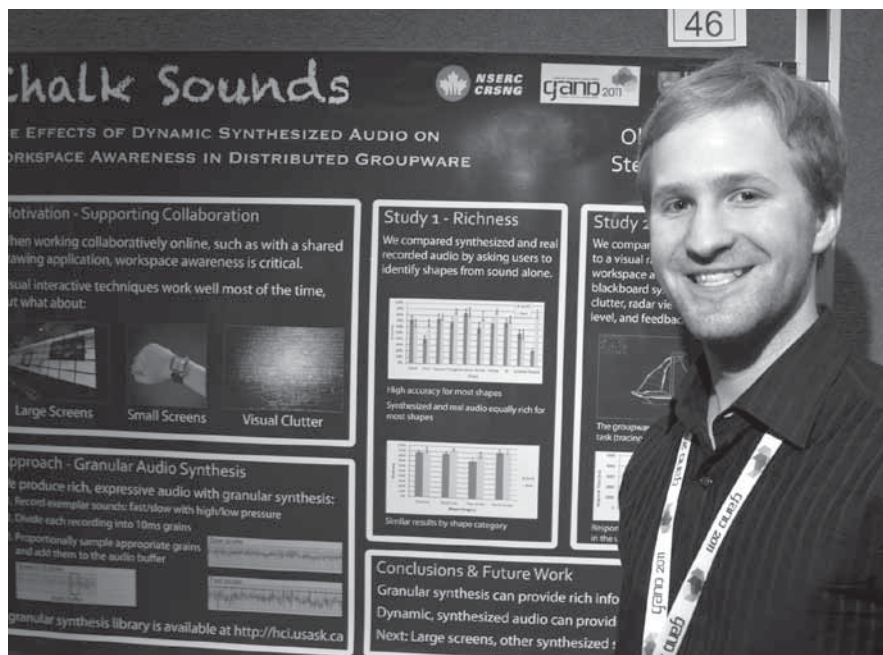
GRAND researchers and HQP continually participate in numerous international conferences and symposia as speakers, organizers and participants. GRAND often seeks out unique opportunities such as doctoral symposia and workshops for young researchers in the network to meet their peers in the U.S.

and elsewhere. The 2011/12 reporting period also saw the introduction of **GRAND Cafés**: peer-to-peer meetings organized by and for HQP. A list of these events is provided in *2011/12 Event Highlights*.

HQP are furthermore supported through GRAND's new Young Network Investigator Awards (YNI)³ introduced in 2011. The awards assist former doctoral students or postdoctoral fellows in their transition to research faculty positions while maintaining and leveraging their involvement in the network. YNI recipient Anthony Tang (UCalgary), profiled below, is now a Collaborating Network Investigator, the precursor to becoming a Principal Network Investigator.

HQP now also plays a more important role in coordinating GRAND's annual conference. In addition to student poster sessions (an initiative started in 2010), the May 2011 conference held in Vancouver introduced a student-dedicated review process called **WIPs (Works in Progress)**. Lead by two student co-chairs and their 10-person team of associate chairs, WIPs are competitively limited to 30 presentations with more than 100 students participating in the review process.

Another way GRAND is involving more HQP in the network is through the newly elected **Graduate Student and Postdoc Committee (GSPC)**. With the nomination of two co-chairs, the GSPC now has observer status on the Board of Directors. This allows for direct input to the Board from the student and postdocs they represent.



... GRAND CONTINUES TO DEVELOP HQP FOR LEADERSHIP ROLES...

³ Recipients of the 2011 Young Investigator Awards are listed under Network Community.



profile

University of
Calgary

ANTHONY TANG

Anthony Tang is an up-and-coming young Computer Science professor and researcher in the early stages of his career. He's also a unique example of GRAND's success in developing and retaining HQP.

Recently hired as an assistant professor at the University of Calgary, Anthony Tang's engagement with GRAND and its predecessor NECTAR (an NSERC strategic network from 2004-2008), began at the start of his graduate studies.

As a NECTAR HQP during his master's program (supervised by Saul Greenberg at UCalgary), Tang investigated mixed presence groupware applications for HCI. As a doctoral student and GRAND HQP (supervised by Sid Fels at UBC), he explored designs for interactive and collaborative applications for the workplace, such as digital tabletops, through GRAND's SHRDSP (Shared Displays) project. Tang then continued his research on collaboration technology and digital media as an NSERC postdoctoral fellow at the Georgia Institute of Technology.

Most recently, Tang was awarded one of four Young Network Investigator (YNI)

Awards. GRAND introduced the YNI initiative in 2011 to help former doctoral and postdoctoral HQP transition into faculty positions while remaining involved in GRAND research projects.

In Tang's case, he advanced to being a Collaborating Network Investigator (CNI) in GRAND's AESTHVIS (Aesthetics and Visualization) project, as well as continuing his research in the SHRDSP project. His research focuses on how ubiquitous technologies can be designed to support health and wellness and activities in the workrooms of the future.

A key application of Tang's research is the design of mobile technologies that use sensors to collect and analyze information about users' physical well-being and visualizations to help those with chronic illnesses better understand their conditions.

"This is a powerful, untapped application area that already has a lot of people interested," Tang says. Medical practitioners and clinicians, in particular, foresee this as a powerful tool to collect accurate health information currently filled out on paper-based forms.

Having collaborated with researchers from many different labs and institutions, Tang exemplifies the cross-disciplinary and cross-university spirit of GRAND. His highly multidisciplinary work requires expertise from many people across the network.

As Tang points out, "[Canada] has top-notch researchers interested in working on exciting, hard problems ... GRAND makes it possible to work with all these folks, as well as to meet new people and discover new problems."



profile

JOANNA

McGRENERE

University of
British Columbia

With a strong record of success in academia and industry by her graduate students, HCI researcher Joanna McGrenere stands out as a passionate and skilled mentor.

UBC computer science professor Joanna McGrenere is as gifted in her research field of human-computer interaction (HCI) as in her role of educator. An accomplished and highly productive mentor of graduate students, McGrenere is dedicated to providing high-calibre training that is amply reflected in the achievements of her students.

McGrenere's first postdoc and first three PhD students—including Karyn Moffatt and Andrea Bunt (both now Collaborating Network Investigators in GRAND)—hold tenure track faculty appointments. As well, all 17 of McGrenere's master's students supervised since 2002 have either continued with her as doctoral students, or found work immediately in the high-tech industry with organizations such as Microsoft, IBM, SAP, OpenText, HSBC, ESRI Canada and various levels of government.

Equally notable is the fact that McGrenere has supervised or co-supervised as many female as male graduate students and that her first three PhD students were all women. This contrasts sharply with the declining North American rate of 10-20% for female undergrads and grads in Computer Science programs, a trend that is of increasing concern to industry and academia alike.

As a co-leader of UBC's Multimodal Experience (MUX) Lab and through her work with GRAND's PERUI and INCLUDE projects, McGrenere's extensive research focuses on developing personalized and accessible user interfaces of digital tools, especially for older users and those with cognitive disabilities such as aphasia. Her mission is to make technology fit users, rather than the reverse and to harness the power of interactive computing for underserved users. One promising example underway is a web-based self-assessment

tool for the early detection of dementia that can be used for initial screening.

A new GRAND project co-led by McGrenere is DIGIKIDZ, created to design technologies that allow children as young as six months to connect, collaborate and communicate with each other and with loved ones, at a distance.

For her mentorship and her research, the Canadian Association of Computer Science awarded McGrenere an Outstanding Young Computer Science Research Award in 2011. In 2004 she was the inaugural recipient of the Anita Borg Early Career Scholar Award from the CRA Committee on the Status of Women in Computing Research.

Based on her past distinctions and successes, GRAND anticipates many more solid contributions to industry and digital media research from both McGrenere and her students.



PHOTO CREDIT: TAG LAB

LOOKING AHEAD

The GRAND network continues to identify and foster interdisciplinary research in digital media aimed at developing benefits to Canadians. Given the short time span from invention to innovation (and sometimes obsolescence) in this area, network researchers must engage closely with their receptor and user communities to maximize knowledge and technology exchange, leverage commercial opportunities and ensure that the beneficial outcomes of research reach stakeholders. These strong networking and partnerships among the academic, public and private sector stakeholders help drive Canada's competitive advantage.

GRAND strives to be an agile organization that evolves as a network. GRAND is working to build and improve on the past successes of its initiatives and partnerships, incorporate new ideas and activate innovative programs where appropriate that better reflect the research it supports and the community it serves.

In addition to regional and local initiatives and partnerships, GRAND is engaged in a number of developing international relationships.



Some events of significance include GRAND's participation in the first **Brazilian Visual Analytics (BRAVA)** workshop held in São Paulo. GRAND was also represented at the **Intel Science and Tech Center for Visual Computing** meeting at Stanford University, which brings together top researchers

to collaboratively advance the state-of-the-art in visual computing. In addition, GRAND has accepted an invitation to represent the Canadian digital media sector at the **American Association for the Advancement of Science (AAAS)** Conference, one of the world's largest general scientific conferences.

GRAND is also forging new relationships with international partners. A three-year MOU is in place between GRAND and **Inria** (France) to continue exchange visits between four GRAND computer graphics research labs and two Inria labs. Discussions on extending these exchanges to other areas, such as HCI, are also underway. An MOU between GRAND, the **University of Canterbury** and at least one other New Zealand university is also proceeding to solidify these organizations' ongoing relationship involving exchange visits and faculty sabbaticals.



Closer to home, GRAND researchers and students will be participating in the **2012 Congress of the Humanities and Social Sciences**—Canada’s largest multidisciplinary gathering of scholars. At Congress, the **Canadian Game Studies Association (CGSA)** will be hosting GRAND-related presentations; as well a GRAND team from the University of Alberta will hold a joint session with the **Society for Digital Humanities (SDH)**. GRAND together with the CGSA, the SDH, the **Film Studies Association of Canada (FSAC)**, the **Canadian Association for Information Science (CAIS)**, and the **Canadian Communication Association (CSA)**, will also host a reception featuring music, interactive visuals and a games showcase.



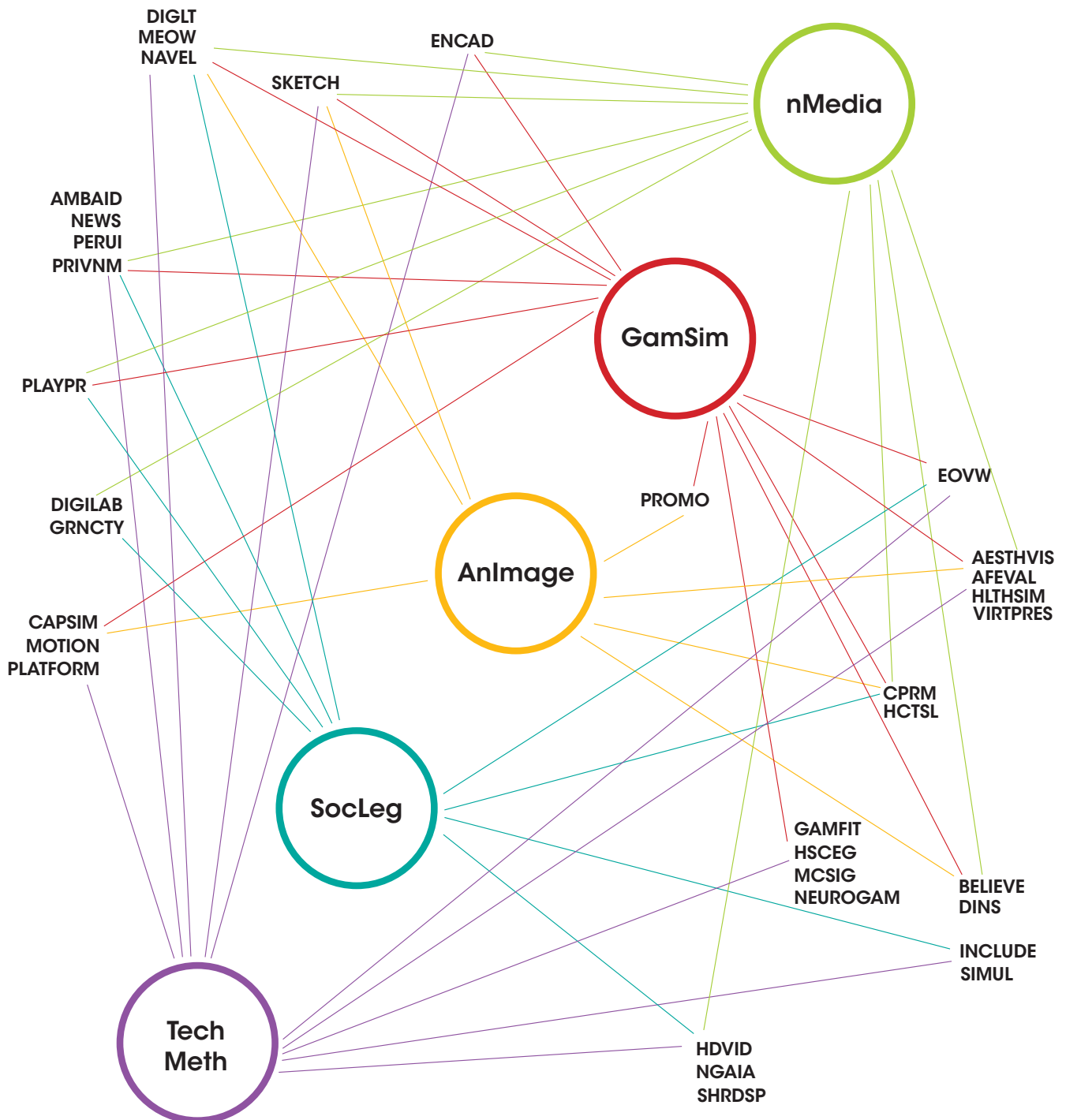
Additions to the research program are also on the horizon. A call for new projects was announced in the Fall 2011 to address new and underrepresented contemporary themes in society. Expect to see the following projects come online in 2012:

- Focusing Research about Gendered Gaming (**FRAGG**) will examine gender issues in gaming from the perspectives of both consumers and producers.
- Children’s Digital Culture: Connecting, Communicating and Collaborating in a Digital World (**DIGIKIDZ**) will explore children’s use of digital media and the ways this use differs from adults in view of technology, as well as social and cultural contexts.
- Stereo 3D Film (**S3DFILM**) will examine how “S3D” (stereographic display) among other new digital film technologies are impacting approaches to developing narratives, the use of space in film and other creative decisions by filmmakers.
- Visual Science for Stakeholders: Experimental Designs of Scientific Visuals for Health and Science Consumers (**VSS**) will apply visual science research to improve tools that communicate and interpret health and scientific information for consumers.

... ADDRESS
NEW AND
UNDERREPRE-
SENTED CON-
TEMPORARY
THEMES IN
SOCIETY...

GRAND's research program is organized into a matrix of projects that mutually interact within five themes (nMedia, GamSim, AnImage, SocLeg, TechMeth) defined below. Each theme is focused on specific aspects of the research program. Most projects have multiple activities that include basic and applied university-based research conducted in collaboration with partners in the appropriate receptor communities.

RESEARCH PROGRAM



RESEARCH THEMES

NMEDIA—NEW MEDIA CHALLENGES AND OPPORTUNITIES

Leader: Catherine Middleton
Co-leader: Diane Gromala

nMedia researchers identify, develop and evaluate the tools, skills and methodologies needed to advance the next generation of new media applications and distribution channels. nMedia also addresses the ever-evolving challenges and impacts these changes have on lifestyle, culture, law and business.

GAMSIM—GAMES AND INTERACTIVE SIMULATION

Leader: Duane Szafron
Co-leader: Regan Mandryk

Canada is an important global leader in the computer game production industry. Beyond entertainment, “serious applications” using interactive gaming technologies have made huge strides in education, training, healthcare and social discourse. The GamSim theme covers a broad range of research in the construction, use and understanding of games in three areas: Game Development Technologies, Education and Applications.

ANIMAGE—ANIMATION, GRAPHICS AND IMAGING

Leader: Brian Wyvill
Co-leader: Pierre Poulin

The AnImage theme not only tackles the question of how to create content, it also questions what to create, including ways to intuitively guide creators toward the details that matter. Areas of focus include: Animation, Scalable Content Generation, Effective and Intelligent User Interfaces and Human Perceptions.

SOCLEG—SOCIAL, LEGAL, ECONOMIC AND CULTURAL PERSPECTIVES

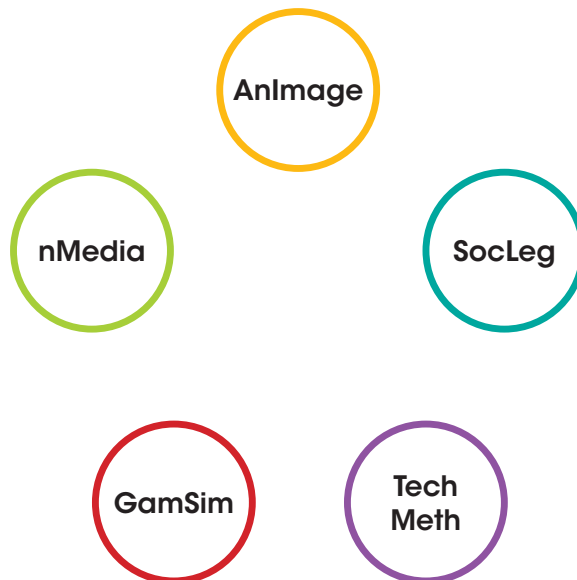
Leader: Samuel Trosow
Co-leader: Jennifer Jenson

SocLeg asks hard questions about how GRAND research in the areas of new media, games, graphics and animation are relevant and beneficial to Canadians in all walks of life and from social, cultural, economic, political and legal contexts. SocLeg also delves into how policymakers can best adopt legal and regulatory processes to the challenges of digital media.

TECHMETH—ENABLING TECHNOLOGIES AND METHODOLOGIES

Leader: Jeremy Cooperstock
Co-leader: Carl Gutwin

The TechMeth theme identifies and develops the building blocks used to invent, design, produce and evaluate the next generation of games, animation and new media technologies for use by consumers, research and industry. Broadly speaking, the TechMeth theme concentrates on four categories of reusable knowledge: Architectures, Specific Techniques, Methods and Methodologies and Tools.



AESTHVIS ○○○○

Aesthetics and Visualization

PROJECT LEADER
Sheelagh Carpendale
University of Calgary

PROJECT CO-LEADER
Lyn Bartram
Simon Fraser University

AESTHVIS develops empirical guidelines for aesthetics in visualization so designers can produce more imaginative and innovative visualizations less constrained by technology.

AFEVAL ○○○○

Evaluating Affective User Experience

PROJECT LEADER
Regan Mandryk
University of Saskatchewan

PROJECT CO-LEADER
Jeremy Cooperstock
McGill University

AFEVAL provides better tools for testing the emotional impact of games and other digital media products to reduce development costs.

AMBAID ○○○○

Appropriate-Modality Bases For Ambient Information Display

PROJECT LEADER
Karon MacLean
University of British Columbia

PROJECT CO-LEADER
Ravin Balakrishnan
University of Toronto

AMBAID provides multi-sensory input and output capability for next-generation digital media applications.

BELIEVE ○○○○

Believable Characters, Behaviors and Stories in Story-based Games

PROJECT LEADER
Duane Szafron
University of Alberta

PROJECT CO-LEADER
Magy Seif El-Nasr
Simon Fraser University

BELIEVE provides authors a library of high-level behaviour, plot patterns and game story idiom scripts for adaption to the story at hand.

CAPSIM ○○○○

From Capture to Simulation

PROJECT LEADER
Wolfgang Heidrich
University of British Columbia

PROJECT CO-LEADER
Eugene Fiume
University of Toronto

CAPSIM produces general methods to capturing time-varying geometry of complex physical phenomena including fluids, fire, smoke, fabric and facial expressions to bring a new level of realism to computer graphics.

CPRM ○○○○

Confronting Pain: Redefining Mobility

PROJECT LEADER
Diane Gromala
Simon Fraser University

PROJECT CO-LEADER
Chris Shaw
Simon Fraser University

CPRM leads to improved pain management tools and techniques for people who suffer from chronic pain.

DIGILAB ○○○

Digital Labour: Authors, Institutions and the New Media

PROJECT LEADER
Samuel Trosow
University of Western Ontario

PROJECT CO-LEADER
Bart Simon
Concordia University

DIGILAB informs public policy on copyright, access to information, employment standards and historical archiving.

DIGLT ○○○○

Digital Games for Learning and Training

PROJECT LEADER
Cristina Conati
University of British Columbia

PROJECT CO-LEADER
Jennifer Jenson
York University

DIGLT identifies the components of successful instructional game design and develops guidelines for developers.

DINS ○○○○

Digital Infrastructure

PROJECT LEADER
Catherine Middleton
Ryerson University

PROJECT CO-LEADER
Barry Wellman
University of Toronto

DINS provides a better understanding of the continued evolution of Canada as a networked society and its relationship to the global network.

ENCAD ○○○○

Enabling Technologies for CAD Systems

PROJECT LEADER
Wolfgang Stuerzlinger
York University

PROJECT CO-LEADER
Rob Woodbury
Simon Fraser University

ENCAD combines constraints, simulation, histories and alternatives with established representations so CAD system developers can readily transfer to commercial practice.

EOVW ○○○○

Developing Methods for Evaluation of Virtual Worlds & Understanding User Experiences

PROJECT LEADER
Magy Seif El-Nasr
Simon Fraser University

PROJECT CO-LEADER
Regan Mandryk
University of Saskatchewan

EOVW uses Toki World to test telemetry of user behaviour and data mining techniques for understanding user play styles and learning methods.

GAMFIT ○○○

Gaming for Physical Fitness

PROJECT LEADER
Nicholas Graham
Queen's University

PROJECT CO-LEADER
Regan Mandryk
University of Saskatchewan

GAMFIT harnesses the popularity of computer and video gaming to maintain and improve physical and cognitive well being.

GRNCTY ○○○

Greenest City Conversations

PROJECT LEADER
Robert Woodbury
Simon Fraser University

PROJECT CO-LEADER
John Robinson
University of British Columbia

GRNCTY engages the general public with participatory media events to understand the roles media can play in forming sustainable attitudes and actions.

HCTSL ○○○○

Human Centred Technologies for Sustainable Living

PROJECT LEADER
Lyn Bartram
Simon Fraser University

PROJECT CO-LEADER
Robert Woodbury
Simon Fraser University

HCTSL develops interactive control and visualization systems that help building occupants make appropriate energy and resource use decisions without imposing undue technological complexity.

HDVID ○○○○

New Interactions Around HD Video

PROJECT LEADER
Edward Lank
University of Waterloo

PROJECT CO-LEADER
Lynn Hughes
Concordia University

HDVID conducts case studies and develops prototypes designed to understand and enhance consumers' use of digital video appliances.

HLTHSIM ○○○○

Multi-Modal Augmented Reality for Training Healthcare Professionals

PROJECT LEADER
Roy Eagleson
University of Western Ontario

PROJECT CO-LEADER
Eleni Stroulia
University of Alberta

HLTHSIM uses virtual world scenarios to train future health professionals to better collaborate in teams and enhance clinical-diagnostic skills.

HSCEG ○○○

High-Speed Coordination in Electronic Games

PROJECT LEADER
Carl Gutwin
University of Saskatchewan

PROJECT CO-LEADER
Nicholas Graham
Queen's University

HSCEG develops tools for high-speed networked games that allow true coordination amongst players.

INCLUDE ○○○○

Accessibility of New Media for Disabled, Elderly and Vulnerable Individuals

PROJECT LEADER
Deborah Fels
Ryerson University

PROJECT CO-LEADER
Ronald Baecker
University of Toronto

INCLUDE explores, develops and evaluates technologies to improve access to interactive media systems for people with disabilities, people isolated from others and seniors.

MCSIG ○○

Monte Carlo Search in Games

PROJECT LEADER Jonathan Schaeffer <i>University of Alberta</i>	PROJECT CO-LEADER Holger Hoos <i>University of British Columbia</i>
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MCSIG improves decision making for imperfect information games and in the presence of uncertainty, infer hidden state from move sequences and model opponents' weaknesses.

MEOW ○○○○○

Media Enabled Organizational Workflow

PROJECT LEADER Eleni Stroulia <i>University of Alberta</i>	PROJECT CO-LEADER Kellogg S. Booth <i>University of British Columbia</i>
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MEOW ensures that GRAND uses 'best of breed' digital media tools to manage itself.

MOTION ○○○

Modeling Human Motion

PROJECT LEADER Michiel van de Panne <i>University of British Columbia</i>	PROJECT CO-LEADER Paul Kry <i>McGill University</i>
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MOTION develops results for animation, games, e-commerce, new media interfaces, health care applications and entertainment robotics.

NAVEL ○○○○○

Network Assessment and Validity for Effective Leadership

PROJECT LEADER Barry Wellman <i>University of Toronto</i>	PROJECT CO-LEADER Abby Goodrum <i>Ryerson University</i>
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NAVEL is the yin for project MEOW's yang, ensuring GRAND researchers network effectively with each other.

NEUROGAM ○○

Employing Game Technology for the Remediation of Neurodevelopmental Disorders in Children

PROJECT LEADER Nicholas Graham <i>Queen's University</i>	PROJECT CO-LEADER Bruce Gooch <i>University of Victoria</i>
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NEUROGAM researches the effectiveness of digital games in improving the health and lifestyles of children with cerebral palsy (CP) and fetal alcohol spectrum disorder (FASD).

NEWS ○○○○○

Access to News Media: Production, Search, Retrieval and Distribution

PROJECT LEADER Abby Goodrum <i>Ryerson University</i>	PROJECT CO-LEADER Charles Clarke <i>University of Waterloo</i>
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NEWS explores the future of news seeking behavior, news retrieval, news mining and the interplay of social media and institutional media outlets in global news flows.

NGAIA ○○○

Next Generation Information Appliances

PROJECT LEADER Luanne Freund <i>University of British Columbia</i>	PROJECT CO-LEADER Charles Clarke <i>University of Waterloo</i>
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NGAIA examines the advantages of a task-based rather than document-based approach to the retrieval of information for workplace decision-making.

PERUI ○○○○○

Personalized User Interfaces in Real World Contexts

PROJECT LEADER Michael Terry <i>University of Waterloo</i>	PROJECT CO-LEADER Joanna McGrenere <i>University of British Columbia</i>
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PERUI investigates interface personalization techniques to address problems of complexity and learnability in modern interfaces.

PLATFORM ○○○○

Platform Performance

PROJECT LEADER Alexandra Fedorova <i>Simon Fraser University</i>	PROJECT CO-LEADER Bruce Gooch <i>University of Victoria</i>
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PLATFORM relieves game developers from thread and shared state management and will provide faster parallel algorithms for geometry processing.

PLAYPR ○○○

Play and Performance Interfaces for Culture and Games

PROJECT LEADER Lynn Hughes <i>Concordia University</i>	PROJECT CO-LEADER Ron Wakkary <i>Simon Fraser University</i>
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PLAYPR integrates the analysis, evaluation and design of cultural and entertainment applications with the development of interfaces for play, performance and storytelling.

PRIVNM ○○○○○

Usable Privacy and Security for New Media Environments

PROJECT LEADER Robert Biddle <i>Carleton University</i>	PROJECT CO-LEADER Konstantin Beznosov <i>University of British Columbia</i>
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PRIVNM supports privacy and security in new media environments by leveraging social science research and exploring new designs and legal perspectives.

PROMO ○○○

Procedural Modeling

PROJECT LEADER Pierre Poulin <i>Université de Montréal</i>	PROJECT CO-LEADER Przemyslaw Prusinkiewicz <i>University of Calgary</i>
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PROMO expands the range of procedural modeling capabilities and extends it to a number of applications areas and industry uses.

SHRDSP ○○○○

Understanding Roles and Rules for Shared Display Environments

PROJECT LEADER Sid Fels <i>University of British Columbia</i>	PROJECT CO-LEADER Ravin Balakrishnan <i>University of Toronto</i>
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SHRDSP investigates a range of computer display modalities and techniques in order to enhance human-human communication.

SIMUL ○○○○○

Enhanced Communication in Simulation and Training

PROJECT LEADER Gerald Penn <i>University of Toronto</i>	PROJECT CO-LEADER Carl Gutwin <i>University of Saskatchewan</i>
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SIMUL provides direct benefit to Canada's defence and aerospace technology sectors and has civilian applications such as video gaming and voice-controlled operation.

SKETCH ○○○○○

Sketch Interfaces

PROJECT LEADER Karan Singh <i>University of Toronto</i>	PROJECT CO-LEADER Faramarz Samavati <i>University of Calgary</i>
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SKETCH designs new interaction interfaces that leverage affordances of sketching to infer user intent, recognize complex gestural communication and create 3D models and animation.

VIRTPRES ○○○○○

Enhanced Virtual Presence and Performance

PROJECT LEADER Jeremy Cooperstock <i>McGill University</i>	PROJECT CO-LEADER Stephen Brooks <i>Dalhousie University</i>
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VIRTPRES enhances the next generation of virtual presence and live performance technologies in a manner that supports the task-specific demands of communication, interaction and production.

BOARD OF DIRECTORS

AS OF SEPTEMBER 2012

We thank the following retiring directors for their service: Angus Frame, Ron Price and Gerri Sinclair. Also, we would like to acknowledge the contributions of Kim Douglas, our former NCE Observer.

Kellogg S. Booth, Scientific Director, GRAND; **Jim Brookes**, Consultant, NeuroDevNet; **Neesha Desai***, GSPC Co-Chair, GRAND; **Sara Diamond**, President, OCAD University; **Vic DiCiccio***, Director, Institute for Computer Research, University of Waterloo; **Sara Esam***, NCE Observer, Networks of Centres of Excellence Secretariat; **Abby Goodrum**, Vice President, Research, Wilfrid Laurier University; **John Hepburn**, Vice President, Research, University of British Columbia; **P. Thomas Jenkins**, Executive Chairman, Open Text; **Jason Kee**, Director, Policy & Legal Affairs, Entertainment Software Association of Canada; **C. Ian Kyer (Chair)**, Counsel, Fasken Martineau; **David Martin**, Executive Chairman, Smart Technologies Inc.; **Paul Salvini**, Chief Technology Officer, Christie; **Adrian Sheppard***, Network Manager, GRAND; **Wolfgang Stuerzlinger**, Network Investigator Representative, GRAND; **Kevin Tuer**, Managing Director, Canadian Digital Media Network; **Lola Wong***, GSPC Co-Chair, GRAND

*non-voting members

Kellogg S. Booth, Scientific Director, GRAND; **Elizabeth Churchill**, Principal Research Scientist and Manager, Internet Experiences Group, Yahoo! Research; **Jeremy Cooperstock**, Theme Leader (TechMeth), GRAND; **Jason Della Rocca**, Founder & Senior Consultant, Perimeter Partners; **Beverly Harrison**, Principal Engineer, Lab126; **Gerald Karam**, Distinguished Member of Technical Staff Networking and Services Research, AT&T Labs Research; **Gord Kurtenbach (Chair)**, Director, Research, Autodesk; **Regan Mandryk**, Theme Leader (GamSim), GRAND; **Catherine Middleton**, Theme Leader (nMedia), GRAND; **Samuel Trosow**, Theme Leader (SocLeg), GRAND; **Brian Wyvill**, Theme Leader (AnImage), GRAND

We thank former committee members Natalie Jeremijenko and Duane Szafron for their service.

RESEARCH MANAGEMENT COMMITTEE (RMC)

AS OF SEPTEMBER 2012

INTERNATIONAL SCIENTIFIC ADVISORY COMMITTEE (ISAC)

AS OF SEPTEMBER 2012

Steven Bathiche, Director of Research, Applied Science Group, Microsoft; **Shawn Brixey**, Associate Professor, Digital Arts & Experimental Media, University of Washington; **Steven Collins**, Adjunct Associate Professor, School of Computer Science & Statistics, Trinity College Dublin; **Arvind Gupta**, CEO & Scientific Director, MITACS, Inc.; **Osman Khan**, Assistant Professor, School of Art & Design, University of Michigan; **Scott Kirsner**, Writer/Columnist; **Harry Lewis**, Professor, Computer Science, School of Engineering & Applied Sciences, Harvard University; **Joe Marks (Chair)**, Founder & CTO, Upfront Analytics; **Jacquelyn Martino**, IBM Master Inventor, IBM T.J. Watson Research Center; **Jenny Preece**, Professor and Dean, College of Information Studies, University of Maryland; **Philipp Slusallek**, Professor, Computer Graphics, Saarland University

GRADUATE STUDENT & POSTDOC COMMIT- TEE (GSPC)

Ryan Armstrong, University of Western Ontario; **Neesha Desai (Co-Chair)**, University of Alberta; **Lori McCay-Peet**, Dalhousie University; **Charlotte Tang**, University of British Columbia; **Lola Wong (Co-Chair)**, University of Western Ontario

The Graduate Student and Postdoctoral Committee (GSPC) is a student-led initiative established by and for HQP within the GRAND network. The GSPC serves to communicate a student and postdoc perspective to the GRAND network and to coordinate HQP activities. Volunteers formed the initial committee in 2010. In February 2012, nominations were received for Chair and Vice-Chair positions for the first GSPC election to be held in March. Elected by acclamation, Neesha Desai and Lola Wong agreed to co-chair the committee.

Grace Battiston, Director, Communications; **Kellogg S. Booth**, Scientific Director; **Brie Chauncey**, Program and Administrative Coordinator; **Fauve Mackenzie**, Operations Coordinator (Part Time); **Josh Miller**, IT Support; **Mark Salopek**, Manager, Technology Transfer and Commercialization; **Adrian Sheppard**, Director, Operations & Network Manager

GRAND STAFF

MEMBER UNIVERSI- TIES

Carleton University; Concordia University; Dalhousie University; École de technologie supérieure; Emily Carr University of Art + Design; McGill University; NSCAD University; OCAD University; Queen's University; Ryerson University; Simon Fraser University; Université de Montréal; University of Alberta; University of British Columbia; University of Calgary; University of Manitoba; University of Ontario Institute of Technology; University of Ottawa; University of Saskatchewan; University of Toronto; University of Victoria; University of Waterloo; University of Western Ontario; Wilfrid Laurier University; York University

AerolInfo Systems; Apple Canada; AT&T Labs Research; Autodesk Canada; CAE Professional Services; Canadian Digital Media Network; Carre Technologies; Chiu Hippman Engineering Inc.; Christie Digital; Disney Research; Durante Kreuk; Elsevier Science Ltd.; Embedded Automation Inc.; Entertainment Software Association of Canada; Fasken Martineau; Firsthand Technologies, Inc.; Fortis; Gerri Sinclair Group; Globe and Mail; Google; Harvard University; Heritage Canada; Hewlett Packard Inc.; IBM T.J. Watson Research Centre; Ikamobile; Intel; Janro Imaging Laboratories; Lab126; Masters of Digital Media Program; Microsoft; MITACS; Moscone Brothers; NeuroDevNet; New York University - Steinhardt; Nokia; OpenText; Pacific Institute for Climate Solutions; Pain Society of BC; Parks Canada; Perimeter Partners; Precision Conference Solutions; Saarland University; Side Effects Software; SMART Technologies Inc.; SoligSoft; Telus; TerraSol Energy; Thought Technology Ltd.; Trinity College Dublin; University of Maryland; University of Michigan; University of Washington; Vancouver General Hospital; Wavefront; Western Economic Diversification; Xerox PARC; Yahoo! Research

PARTNERS & PARTIC- IPATING ORGANI- ZATIONS

PRINCIPAL NETWORK INVESTIGATORS (PNI)

Carleton University Robert Biddle, David Mould; **Concordia University** Lynn Hughes, Bart Simon; **Dalhousie University** Stephen Brooks, Elaine Toms; **Emily Carr University of Art + Design** Maria Lantin; **McGill University** Jeremy Cooperstock, Paul Kry; **OCAD University** Paula Gardner; **Queen's University** Nicholas Graham, Roel Vertegaal; **Ryerson University** Deborah Fels, Catherine Middleton; **Simon Fraser University** Alissa Antle, Lyn Bartram, Alexandra Fedorova, Diane Gromala, Magy Seif El-Nasr, Chris Shaw, Ron Wakkary, Robert Woodbury; **Université de Montréal** Pierre Poulin, Temy Tidafi; **University of Alberta** Geoffrey Rockwell, Jonathan Schaeffer, Eleni Stroulia, Duane Szafron; **University of British Columbia** Konstantin Beznosov, Kellogg S. Booth, Cristina Conati, Sidney Fels, Luanne Freund, Wolfgang Heidrich, Holger Hoos, Karon MacLean, Joanna McGrenere, Alla Sheffer, Michiel van de Panne; **University of Calgary** Sheelagh Carpendale, Przemyslaw Prusinkiewicz, Faramarz Samavati; **University of Saskatchewan** Carl Gutwin, Regan Mandryk; **University of Toronto** Ronald Baecker, Ravin Balakrishnan, Eugene Fiume, Aaron Hertzmann, Kyros Kutulakos, Gerald Penn, Karan Singh, Barry Wellman; **University of Victoria** Bruce Gooch, Brian Wyvill; **University of Waterloo** Charles Clarke, Edward Lank, Michael Terry; **University of Western Ontario** Jacquelyn Burkell, Roy Eagleson, Samuel Trosow; **Wilfrid Laurier University** Abby Goodrum; **York University** Barbara Crow, Jennifer Jenson, Wolfgang Stuerzlinger

Carleton University Brian Greenspan, Gabriel Wainer; **Concordia University** Jason Camlot, Jason Lewis, Lisa Lynch, Sudhir Mudur, Elena Razlogova, Kim Sawchuk, Xin Wei Sha; **Dalhousie University** Anatoliy Gruzd, Kirstie Hawkey, Derek Reilly; **École de technologie supérieure** Eric Paquette; **McGill University** Tina Piper; **NSCAD University** Sam Fisher; **OCAD University** Martha Ladly, Bill Leeming, Geoffrey Shea, Greg Van Alstyne; **Ryerson University** Jason Nolan, Frank Russo; **Simon Fraser University** Jim Bizzocchi, Tom Calvert, Halil Erhan, Marek Hatala, Kate Hennessy, Carman Neustaedter, Jian Pei, Bernhard Riecke, Richard (Hao) Zhang; **University of Alberta** Patricia Boechler, Michael Buro, Mike Carbonaro, Sean Gouglas, Sharla King, Martin Mueller, Ioanis Nikolaidis, Toni Samek; **University of British Columbia** Ray Cole, Robert Gardiner, Heather O'Brien, John Robinson, Stephen Sheppard; **University of Calgary** Jeffrey Boyd; **University of Manitoba** Andrea Bunt, Pourang Irani; **University of Ontario Institute of Technology** Bill Kapralos; **University of Ottawa** Mary Cavanagh, Jochen Lang, Won Sook Lee; **University of Saskatchewan** Kevin Stanley; **University of Toronto** Jeremy Birnholtz, Mark Chignell, David Fleet, Siobhan Stevenson, Yuri Takhteyev; **University of Victoria** Ryan Rhodes, Melanie Tory; **University of Waterloo** Mark Hancock, Craig Kaplan, George Labahn; **University of Western Ontario** Sandrine de Ribaupierre, Nick Dyer-Witthoford, Diana Mok, Anabel Quan-Haase, Matt Stahl

INTERNATIONAL CNI : **University of Canterbury, New Zealand** Mark Billingham, Andy Cockburn

YOUNG NETWORK INVESTIGATORS (YNI)

Carleton University Audrey Girouard; **McGill University** Karyn Moffatt; **University of Calgary** Anthony Tang; **University of Ontario Institute of Technology** Lennart Nacke

GRAND created the Young Network Investigators Awards in 2011 to recognize the need for start-up funds when HQP make the transition from doctoral student or postdoctoral fellow to research faculty positions. Up to \$5,000 in seed funding over the first 12 months in their new positions nurtures, as well as leverages, their involvement with GRAND until they become CNIs and can qualify for funding requests.

COLLABORATING NETWORK INVESTIGATORS (CNI)

FINANCIAL STATEMENTS

INDEPENDENT AUDITORS REPORT

To the Directors of Graphics, Animation and New Media NCE Inc.

We have audited the financial statements of the GRAND FUND - Network of Centres of Excellence (the "Fund"), which comprise the statements of financial position as at March 31, 2012 and 2011 and the statements of operations and cash flows for the years then ended and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian generally accepted accounting principles and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of the Fund as at March 31, 2012 and 2011 and the results of its operations and its cash flows for the years then ended in accordance with Canadian generally accepted accounting principles.



Chartered Accountants
Vancouver, British Columbia
September 11, 2012

FINANCIAL STATEMENTS

STATEMENTS OF FINANCIAL POSITION

March 31, 2012 and 2011

	2012	2011
ASSETS		
Current		
Cash - unrestricted	\$ 59,684	\$ 32,328
Cash - restricted		
Uncommitted	1,005,209	797,209
Committed to research funding (Note 3)	1,162,500	-
Accounts receivable	61,222	11,497
Research administration advances	63,508	61,315
Prepaid research funding	130,000	1,164,500
	2,482,123	2,066,849
LIABILITIES		
Current		
Accounts payable and accrued liabilities	35,079	37,095
Unearned revenues	16,279	12,094
Deferred research funding contributions (Note 4)	2,363,399	1,986,671
	2,414,757	2,035,860
NET ASSETS	\$ 67,366	\$ 30,989

STATEMENTS OF OPERATIONS

Years ended March 31, 2012 and 2011

	2012	2011
REVENUE		
Contribution from Networks of Centres of Excellence (Note 4)	\$ 4,286,712	\$ 3,453,682
Other contributions	133,512	71,277
	4,420,224	3,524,959
EXPENDITURES		
Events	211,958	138,866
Professional fees	20,801	20,961
Administration	152,266	121,172
Research funding grants (Note 3)	3,504,655	2,808,674
Salaries and benefits	332,372	263,911
Travel	161,795	139,539
	4,383,847	3,493,123
INCREASE (DECREASE) IN NET ASSETS	36,377	31,836
NET ASSETS, BEGINNING OF YEAR	30,989	(847)
NET ASSETS, END OF YEAR	\$ 67,366	\$ 30,989

STATEMENTS OF CASH FLOWS

Years ended March 31, 2012 and 2011

	2012	2011
CASH PROVIDED BY (USED IN)		
OPERATING ACTIVITIES		
Cash received from Networks of Centres of Excellence	\$ 4,650,000	\$ 4,650,000
Cash received from Western Economic Diversification Canada	29,232	-
Cash received from host university	41,800	50,000
Cash received from other sources	31,454	21,875
Cash disbursed for research funding grants	(2,340,155)	(4,846,574)
Cash disbursed for administration and events	(1,014,475)	(741,297)
INCREASE (DECREASE) IN CASH	1,397,856	(865,996)
CASH, BEGINNING OF YEAR	829,537	1,695,533
CASH, END OF YEAR	\$ 2,227,393	\$ 829,537
CASH COMPOSED OF		
Unrestricted cash	\$ 59,684	\$ 32,328
Restricted cash	2,167,709	797,209
	\$ 2,227,393	\$ 829,537

NOTES TO FINANCIAL STATEMENTS

March 31, 2012 and 2011

1. OPERATIONS

The Networks of Centres of Excellence Program (the “NCE”) was created by the Government of Canada to mobilize Canadian research talent in the academic, private and public sectors and apply it to the task of developing the Canadian economy and improving the quality of life of Canadians. The GRAND Fund (the “Fund”) was established jointly on January 8, 2010 by the Natural Sciences and Engineering Research Council (“NSERC”) and the Social Sciences and Humanities Research Council (“SSHRC”) specifically for the purpose of promoting research in new media, animation and games, initially for the period ending on January 7, 2015. Graphics, Animation and New Media NCE Inc. (the “Network”) was selected to operate the Fund and the University of British Columbia (“UBC”) was selected to serve as the host institution for the Network and the Fund, providing facilities and services for the Network’s administrative centre and acting as the legal entity on behalf of the Fund.

The Network is a not for profit company which was incorporated under Part II of the Canada Corporations Act on December 9, 2009 to achieve the following objectives:

- Build an integrated, multi-disciplinary understanding of the technical aspects of new media, animation and games as well as the social, legal, economic and cultural aspects.
- Foster an appreciation for the role of design in the research and development of technology.
- Develop strong end-to-end networking and partnerships among the academic, private and public sectors to enhance Canada’s competitive advantage.
- Conduct world class research in new media, animation and games.
- Train highly qualified personnel and facilitate knowledge and technology exchanges that lead to commercialization and innovation.

On January 8, 2010, the Network entered into a supplemental Memorandum of Agreement with UBC, to clarify UBC’s responsibilities as the host institution.

These financial statements include the GRAND Fund contributions received from the NCE by the Network and disbursed on behalf of the NCE. During the period the Network received substantially all of its revenue from NCE and may not be able to maintain the operations described in these financial statements should this funding be significantly reduced or ended.

2. SIGNIFICANT ACCOUNTING POLICIES

These financial statements have been prepared on the basis of Canadian accounting principles generally accepted (“GAAP”) for non-profit organizations, which include the following significant policies:

Contributions

Contributions to the Fund are recorded as “receipts” at the time all criteria established in the funding agreement are satisfied. The agreement for each grant or fund determines the appropriate disbursement of contributions. Contributions received but not disbursed at the end of a fiscal period are recorded as “deferred” and are transferred to “receipts” when disbursed during a subsequent fiscal period.

Any contributions received from the NCE and not spent when the Fund is ended are to be refunded to NCE, no later than three months after the end of the Fund.

Financial Assets and Financial Liabilities

The Fund’s financial assets and liabilities, other than cash and cash equivalents, are classified as follows:

- Cash is classified as held-for-trading and measured at fair value.
- Amounts receivable are classified as loans and receivables and are measured at amortized cost.
- Accounts payable and accrued liabilities and deferred contributions are classified as other financial liabilities and are measured at amortized cost.

The carrying amounts of these financial assets and financial liabilities as at March 31, 2012 and 2011 approximate their fair values due primarily to their short term nature or maturities.

Transaction costs directly attributable to the acquisition or issue of a financial instrument are added to the carrying amount of the financial instrument and are amortized to operations using the effective interest rate method.

The Fund classifies and discloses fair value measurements based on a three-level hierarchy:

- Level 1 – inputs are unadjusted quoted prices in active markets for identifiable assets or liabilities;
- Level 2 – inputs other than quoted prices in Level 1 that are observable for the asset or liability, either directly or indirectly; and
- Level 3 – inputs for the asset or liability that are not based on observable market data.

Income Taxes

The Fund, as a non-profit organization, is not subject to Federal or Provincial income taxes.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets, liabilities and commitments at the date of the financial statements and the reported amount of revenues and expenses during the reporting periods.

Actual results could differ from the estimates and assumptions made in the preparation of these financial statements.

In-kind contributions

In-kind contributions from the University of British Columbia as part of the Network Host agreement are not included in these financial statements.

Future Accounting Changes

In December 2010, the Accounting Standards Board (“AcSB”) of the Canadian Institute of Chartered Accountants (“CICA”) released Part III of the CICA Handbook – Accounting, which consists of accounting standards for not-for-profit organizations. The standards will be effective for fiscal years beginning on or after January 1, 2012 and allow non-governmental not-for-profit organizations to apply either accounting standards for not-for-profit organizations with a reference to standards for private enterprises where appropriate or International Financial Reporting Standards (“IFRS”).

The Fund has assessed the impact of each option and has decided to adopt IFRS as it will most completely and accurately reflect the Fund’s operations in its financial statements. Accordingly, the Fund will present its financial statements for the year ended March 31, 2013, including comparative information, in compliance with IFRS. The Fund does not expect the adoption of IFRS to result in significant changes in its financial statement disclosure or its operating procedures.

3. GRANTS TO NETWORK MEMBERS

During the year ended March 31, 2012, the Fund granted \$3,504,655 (2011 - \$2,808,674) of the NCE contributions to Network Members. Of the total NCE contributions granted to Network Members, \$627,050 (2011 - \$1,034,873) was reported as unspent at the end of the fiscal year. These amounts are expected to be spent by the Network Members during the next fiscal year.

The Fund also awarded \$1,162,500 in research grants for the 2013 fiscal year. These awards were disbursed subsequent to year end and have been included as restricted cash committed to research funding.

4. FUNDING AGREEMENTS

Networks of Centres of Excellence

On January 8, 2010, NSERC and SSHRC agreed to contribute funding of \$23,250,000 for the Fund for five years to January 7, 2015. The funding is to be received according to the following schedule:

Fiscal Year	NSERC	SSHRC	Total
2009 - 2010	\$ 1,860,000	\$ 465,000	\$ 2,325,000
2010 - 2011	3,595,000	1,055,000	4,650,000
2011 - 2012	2,800,000	1,850,000	4,650,000
2012 - 2013	2,800,000	1,850,000	4,650,000
2013 - 2014	2,800,000	1,850,000	4,650,000
2014 - 2015	1,400,000	925,000	2,325,000
Total Funding	\$ 15,255,000	\$ 7,995,000	\$ 23,250,000

The annual contributions will be released subject to:

- Parliamentary appropriation of the funds in each fiscal period
- Satisfactory progress, as determined by the NCE Secretariat, towards predetermined milestones for the NCE Network
- Continuing eligibility of the NCE Network Host and the NCE Network and
- Compliance with the terms of the funding agreement

When all the conditions for the release of contributions to the Fund committed by, but not yet received from, NCE under this agreement have been met, the contributions to be received will be recorded as "Research contributions receivable" and "Deferred research funding contributions" on the statement of net assets of the Fund.

The annual contribution of \$4,650,000 has been received for 2012 (\$4,650,000 received in 2011) and has been reflected in these financial statements.

Western Economic Diversification

The Fund entered into an agreement with Western Economic Diversification Canada ("WED") on February 25, 2011, amended on March 28, 2011, August 2, 2011 and April 12, 2012, to receive the following funding:

Fiscal Year	Total
2010-2011	\$ 2,978
2011-2012	73,736
2012-2013	233,022
2013-2014	89,264
Total Funding	\$ 399,000

This funding is from the Western Diversification Program for small and medium enterprise outreach, commercialization and technology transfer and is intended to strengthen BC and Western Canada's digital media cluster. The funding will be for the reimbursement of 64% of directly related project costs.

The Fund has received \$76,716 in reimbursements in 2012 (\$Nil in 2011).

5. DEFERRED CONTRIBUTIONS

	2012	2011
Balance - Beginning of year	\$ 1,986,671	\$ 790,353
Contributions received during the year		
Grant from NSERC	2,800,000	3,595,000
Grant from SSHRC	1,850,000	1,055,000
Grant from Host Institution	16,800	—
	6,653,471	5,440,353
Amounts recognized as receipts during the year	(4,290,072)	(3,453,682)
Balance - End of year	\$ 2,363,399	\$ 1,986,671

6. CAPITAL MANAGEMENT

The Fund's capital management objectives are to meet the requirements of the funders providing grants for research and to safeguard its ability to continue as a going concern in order to pursue the advancement of graphics, animation and new media. The Fund considers its capital for these purposes to be its available received and committed grants, as disclosed on the statement of net assets. The Fund manages its capital by preparing annual expenditure budgets, which are revised periodically based on current commitments and available funds and potential additional funding which it may be actively pursuing. Annual budgets and budgets which are materially updated during the year are approved by the Board of Directors.

7. FINANCIAL RISK

The Fund's activities expose it to a variety of financial risks, which include credit risk and liquidity risk. The Fund's risk management program focuses on the unpredictability of financial markets and seeks to minimize the risk to its assets and its ability to meet its mandate.

(a) Credit risk

Credit risk is the risk of an unexpected loss if a customer or third party to a financial instrument fails to meet its contractual obligations and arises mainly from its cash. The Fund limits its exposure to credit risk arising from these instruments by only depositing cash in major Canadian financial institutions and holding only financial instruments of institutions with the highest credit rating.

(b) Liquidity risk

Liquidity risk is the risk that the Fund will not be able to meet its financial obligations as they fall due. Accounts payable and accrued liabilities are due within the current operating period. The Fund manages this risk through its capital management programs (Note 5).

The Fund does not hold financial instruments which subject it to market risks.

8. COMPARATIVE FIGURES

The comparative figures have been reclassified where necessary in order to conform to the presentation used in the current year.



TWO PLAYERS ENGAGE IN TWEETRIS—A GAME THAT COMBINES TETRIS, TWITTER AND YOGA—AT NUIT BLANCHE TORONTO 2011. TWEETRIS IS A COLLABORATIVE ART PROJECT INVOLVING RESEARCHERS AT THE DIGITAL FUTURES INITIATIVE (OCAD UNIVERSITY), COMPUTER SCIENTISTS AT THE DYNAMIC GRAPHICS PROJECT LAB (UNIVERSITY OF TORONTO), AND INDEPENDENT ARTISTS.