# • Annual Report •

**2013**

Gilles Comeau, Director
Yuanyuan Lu, Research Coordinator

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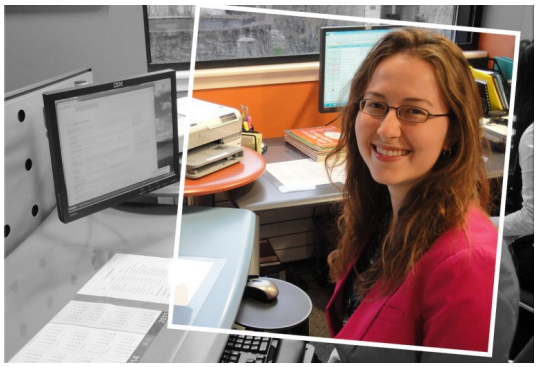
# Staff

## Administrative Assistants

**Edana Higham** (Music)
**Yuanyuan Lu** (Music)
**Sandra Markovic** (Music)
**Nicole Pachla** (Music)
**Sylvain Wellman-Frenette** (Music)



Nicole Pachla

## Technical Assistants

**Huthaifa Abderahman** (Engineering)
**Matthieu Deveau** (Music)
**Sean Done** (Music)
**Caio Elias** (Electrical Engineering)
**Daniyal Khurram** (Electrical Engineering)

Nikhil Enmudi

## Volunteers

**Michelle Iznardo**
**Lisa Pitre**
**Paulette Scheme**

## Resource Centre Coordinator

**Lina Ji** (Marketing)

Lina Ji, Yuanyuan Lu and Sandra Markovic

Sean Done

## Webmaster

**Dharmesh Dhakan** (Computer Science)
**Nikhil Enmudi** (Computer Science)

Dharmesh Dhakan

Caio Elias and Matheus Rocha

## Research Internships

**Caio Elias** (Electrical Engineering)
**Matheus Rocha** (Music)

# Student Involvement

Students have been an integral part of the Piano Lab since its October 2005 opening. Undergraduate and graduate students from a variety of disciplines from the University of Ottawa and Carleton University have contributed to both the administrative and research activities of the Piano Lab.

## Music

Leana Azareal
Ann Babin
Émilie Bertrand-Plouffe
Julia Brook
Hoadan Brown
Tamara Brown
Jacinda Chapman
Mélina Dalaire
Alicia Desjardins
Matthieu Deveau
Sean Done
Tamar Dubuc
Emily Gale
Rosemary Harden
Edana Higham
Shirley Ho
Bonnie Huor
Nisreen Jardaneh
Danielle Lanteigne
Mary Claire Lazure
Catherine Lemay
YiFei Liu
Yuanyuan Lu
Shannon Maertens
Sandra Markovic
Lauren McGee
Milada Medinić
Joel Scott-Mignon
Aaron Mogenson
Line Morais
Hiroko Nakagawa
Nicole Pachla
Erin Parkes
Jason Ray
Matheus Rocha
Adam Saikaley
Kimberley Sundell
Michelle Vandal
Sylvain Wellman-Frenette
Michèle Wheatley-Brown

**Nikhil records a piano lesson**

**Poster presentation by Caio**

**Edana prepares research documentation**

## Engineering

Huthaifa Abderahman
Tanveer Ali
Caroline Andison
Baruyr Baghdasarian
Silvain Bériault
Zacharie Brunet
Pei Cao
Martin Côté
Dharmesh Dhakan
Caio Elias
Nikhil Enmudi
Bowei Han
Christophe Herry
Nimeesh Kaushal
Ali Khanafer
Hanieh Khamseh-Zadeh
Houman Khamseh-Zadeh
Michel Khoury
Daniyal Khurram
Joshua Kotwas
Nimieesh Kaushal
Mathieu Kühn
Jonathan Lam
Javier Mora
Jonathon Neva
Allyshia Sewdat
Mihir Sharma
Junaid Oosman Thair
Christy Vant
Arjun Yogeswaran
Samira Zabhi
Xi Zhang

## Psychology

Runa Das
Michelle Iznardo
Jacklynne Smith

## Mathematics

Daniel de Repentigny

## Film & Sonic Design

Christian Delahousse

## Communications

Shaun Elie

## Marketing

Lina Ji

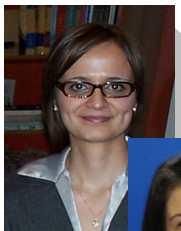
## Health Sciences

YiFei Liu
Flora Nassrallah
Brian Richard
Michael Watson

## Sciences

Stephanie Akhen
Hoang Pham

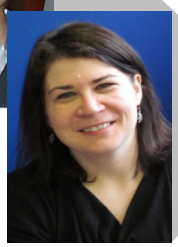
**Karen collecting data via EMG**



**Milada Medinić**

## Information Studies

Jada Watson



**Kimberley Sundell**

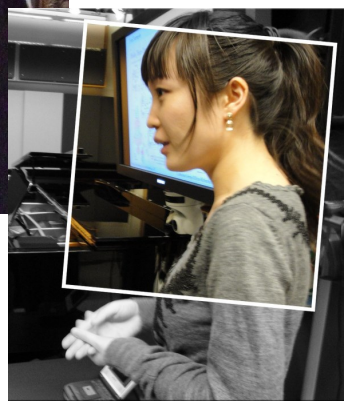
**Sylvain Wellman-Frenette**

# Students

YiFei Liu

## Piano Pedagogy Programs

The academic programs associated with the Piano Pedagogy Research Laboratory are research driven. The program encourages and supports interaction and cooperative effort between students and researchers, which promotes diversified modes of learning.



Yifei presents her project to visitors

## PhD in Human Kinetics (Research Topic in Piano Pedagogy)

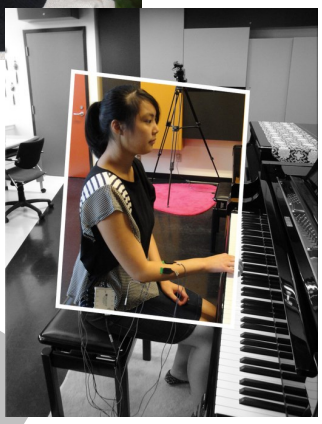
**YiFei Liu** (in progress), dissertation focus on music reading
Supervisor: Gilles Comeau

Grace Wong

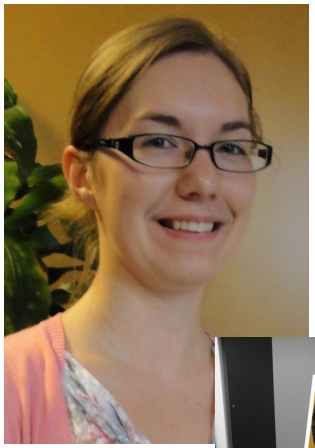
## Master of Arts (with Thesis in Piano Pedagogy)

Allows students to become familiar with existing research in the field and to train as researchers by participating in multidisciplinary research groups.

**Jillian Beacon** (in progress)
**Erin Dempsey** (in progress)
**Grace Wong** (in progress)
Supervisor: Gilles Comeau



Grace participates in an EMG project



Jillian Beacon

Jillian during a testing session

Erin Dempsey

# Students

## Graduate Diploma in Piano Pedagogy Research

Focuses on the study of multidisciplinary research for a better understanding of the processes involved in learning to play the piano. This certificate enables piano teachers to incorporate scientific knowledge into their practice and develops highly qualified professionals with a strong interest in piano pedagogy research.

**Students**

Karen King (in progress)
Elizabeth Szczepanski (in progress)
Jillian Beacon (2013)
Lindsay Hamilton (2013)
Meir Sung (2013)
Grace Wong (2013)
Shannon Maertens (2012)
Vanessa Rektor (2012)
Yuanyuan Lu (2010)
Ivea Mark (2010)

**Karen King**

**Elizabeth Szczepanski**

Michèle Wheatley-Brown (2010)
Shirley Ho (2009)
Marie-Claire Lazure (2008)
Mélina Dalaire (2007)
Erin Parkes (2007)
Leana Azerral (2006)
Julia Brook (2006)
Hoaden Brown (2006)

## Undergraduate Certificate in Piano Pedagogy Research

A considerable number of musicians are trained through the conservatory system and then become teachers without getting a university degree. Others get a university degree in performance without any music education courses. The Undergraduate Certificate in Piano Pedagogy offers professional training and courses with a practical orientation to piano teachers who are already giving lessons in private studios and music schools in order to provide them with the opportunity to improve their skills and knowledge in their chosen field.

**Students**

Susan Mielke (in progress)
Joanna Phua (in progress)
Paula Croucher (2013)
Sandra Markovic (2013)
Émilie Bertrand-Plouffe (2011)
Esther Jean-Charles (2010)

**Susan Mielke**

**Joanna Phua**

# Research Facility

## Ann Southam Multi-Media Control Centre

**Analog and digital video equipment**

Records piano lessons directly on DVD and generates picture-in-picture and instant video replay

**Video conferencing capacity**

Connects international research teams via overseas MIDI transfer and facilitates two-way piano teaching between the laboratory and distant locations

**Production centre**

Enables timely and cost-effective management of all audio and visual files–recording, editing, formatting, transferring

## Sylva M. Gelber Studio

**Equipment**

Two 7'6" acoustic pianos with optical sensors and integrated MIDI operating systems (Disklaviers); analog and digital video cameras capture piano lessons for distance teaching and large LCD screens allow for picture-in-picture display and instant replay

**Recording studio acoustics**

Moveable acoustic panels allow the customization of spatial resonance within the room and soundproof walls impede sound pollution from exterior sources

## Conference Room

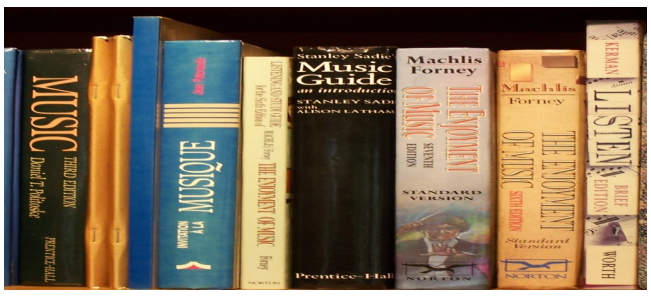
**Multi-purpose environment**

Ideal for seminars, lectures, workshops, video conferencing and distance education

## Resource Centre

**Large reference collection for researchers**

Piano method books, research literature, theses and dissertations, piano scores, audiovisual materials and teaching materials



# Research Facility

## Period Instruments Studio

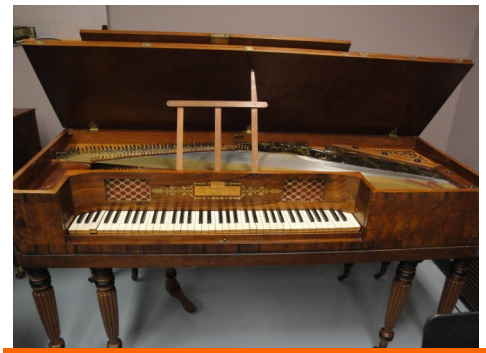
Two manual harpsichord. The harpsichord is a replica of a Dulcken instrument and was constructed by Yves Beaupré.

One manual harpsichord . This has a Latin proverb inscribed on the instrument: “The hand that doesn’t know shouldn’t touch.”

Five and a half octave **Anton Walter** forte - piano built by Richard Hester. The Walter instrument represents a typical fortepiano at the end of the 18th century. All of Haydn, Mozart and Beethoven’s early music can be played on this instrument.


Four and a half octave **Morley of London** clavichord. The kit for this instrument was purchased in the UK and put together by Canadian physicist Hugh LeCaine.

Six octave **Viennese Graf** pianoforte built by R.J. Regier. Graf pianofortes were prominent at the highest level of early 19th century musical life: Beethoven, Chopin, Liszt, Clara Wieck and Brahms owned or played them.



Five and a half octave original **Broadwood** pianoforte. Established in 1728, “John Broadwood and Sons” is one of the oldest and most prestigious piano companies.

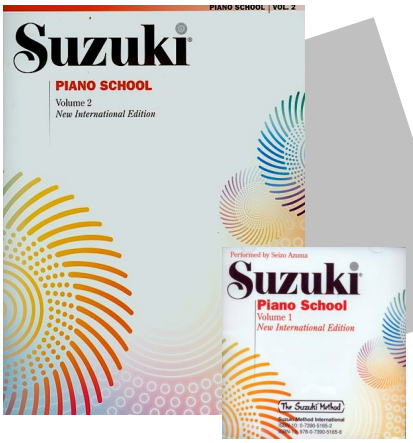
Five and a half octave **Lindholm-Söderström** clavichord built by Andrew Lagerquist. This instrument is known for its ability to stay tuned longer and play louder than the average clavichord.

# Research Projects

## Methods

### Method Book Analysis

The piano method book plays a central role in the acquisition of music reading. This study investigates how music reading is being introduced through an inventory of musical signs and reading concepts found in most common method books.

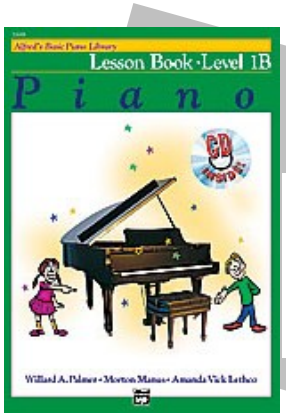



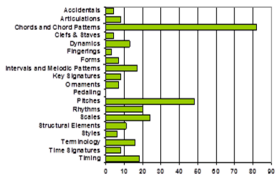

### Suzuki Method

The mother-tongue approach, the corner-stone of the Suzuki method, is based on the assumption that a child can learn to play a musical instrument following the same principles as learning a first language. Considering the popularity of this method, this study investigates whether there should be concerns about the impact of a teaching approach that focuses on ear playing in the initial stages.

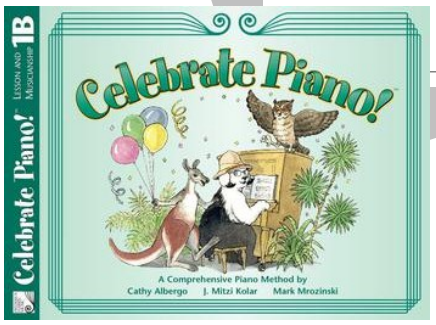
### Repertoire in Piano Method Books

This project provides an inventory of the different categories of repertoire found in piano method books, calculates the proportion of repertoire belonging to each category and identifies the categories that are most often included, as well as the method books that contain the widest variety of repertoire.




| Level | Boogie | Rock music | Sacred music | Seasonal music |
|---|---|---|---|---|
| 1A | 1 | 0 | 0 | 1 |
| 1B | 0 | 0 | 0 | 0 |
| 2A | 1 | 0 | 1 | 0 |
| 2B | 0 | 1 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 |
| | | | 0 | 0 |
| | | | 1 | 1 |



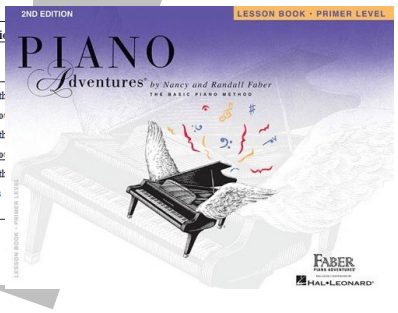

### Comprehensive Musicianship

The Comprehensive Musicianship approach evolved as an attempt to create a more well-rounded music education for students. Are piano method books including types of activities central to Comprehensive Musicianship and are those activities integrated within the main curriculum, or are they activities that are presented in parallel?

**Level 1**

**LESSON BOOK: On Staff Starter**

| Page | Teaching Concept | Category/Sub category | Descripti |
|---|---|---|---|
| 5 | Sitting position | Performance Practices/Position | |
| 6 | 2 and 3 black key groups | Improvisation/Transposition | Exploring th<br>2/3 key gro |
| 6 | Music Alphabet | Improvisation/Transposition | Exploring th<br>2/3 key gro |
| 7 | CDE<br>White keys | Improvisation/Transposition | Exploring th<br>white keys |
| 8 | Quarter note, bar lines, measures, 4/4 time | | |



# Research Projects

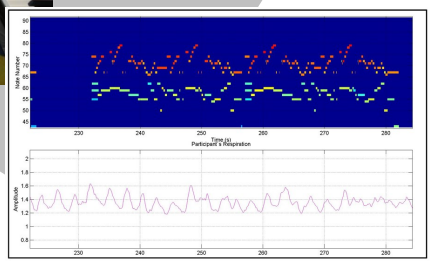
## Health Issues

### Performance Anxiety among Piano Students (NEW)

Performance anxiety affects musicians of all ages and all levels. It is believed that children begin to experience anxiety related to performing as early as 9 years old and adolescents are particularly vulnerable as a consequence of increasing self-awareness. This study examines the nervous signs exhibited by piano students 6 to 17 years of age and investigates whether perfectionism and self-efficacy could be contributing factors.

### The Choice of Intrinsic or Extrinsic Muscles

In playing, the musician may choose to use the powerful extrinsic muscles in the forearm, or the small intrinsic muscles in the palm of the hand. Now in its fifth year, this study will continue for another two years because of its importance in clarifying the biomechanical issues involved and their possible medical implications.



### The Role of Tension in Pedagogical Approaches to Piano Technique (NEW)

Playing without tension is considered an important key to technical freedom, but conflicting advice on the role and management of tension abounds. This study shows that authors view tension either as an impediment to motion, and thus a quality that must be banished, or as an essential component of control that must be carefully managed. These differences are due to an inaccurate understanding of the anatomical and biomechanical principles of the role of tension in piano technique and to the challenges of describing the fine degree of muscular control needed to play the piano freely.

### Pianists' Breathing Patterns

Researchers have taken an interest in the breathing of various instrumentalists but little is known about pianists' breathing patterns. Our goal was to study how pianists' breathing is affected by various elements such as tempo, metre, rhythm, accentuated notes, melodic complexity and phrasing, and it enabled us to establish a methodology for measuring breathing during performance while maintaining playing conditions closest to normal. A new study will examine the breathing patterns of beginning and experienced pianists in relation to the stress of public performance.

### Wrist Stiffness

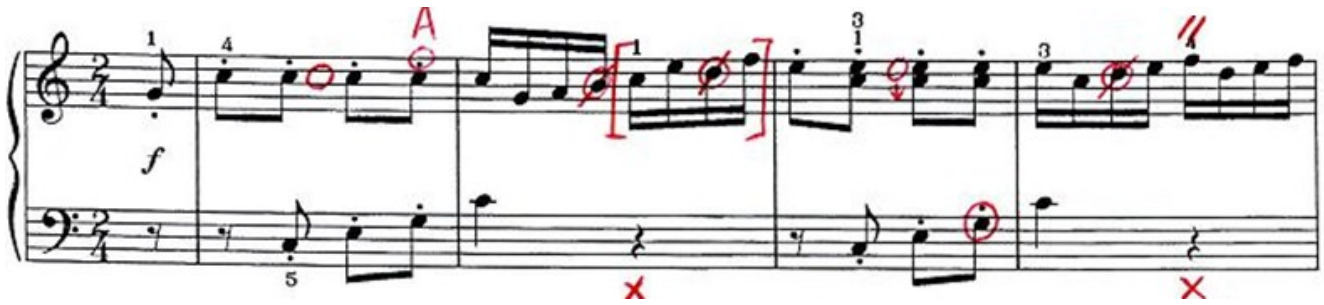
Stiffness, relaxation, co-contraction and multi-joint issues are key concepts in piano pedagogy that also have specific meaning in biomechanics. In a pilot project earlier this year, we examined the wrist movement of experienced pianists in reaction to small, short-duration forces acting on the wrist.

# Research Projects

## Music Reading

### Developing a Tool to Measure Music Reading

Music reading is a skill that many music education programs seek to develop. In spite of its recognized importance, no reliable tool exists to measure and quantify this skill. Yet measuring this ability is essential for evaluating the impact of various teaching strategies or the effects of various experimental conditions. Following a rigorous analysis of psychometric tests used in music reading, the Piano Lab has developed a test using original musical stimuli of increasing difficulty, a system for codifying errors and a scoring grid for evaluating the music-reading performance of beginning to advanced-level pianists.




### Eye-Movements during the Processing of Linguistic and Musical Syntactic Incongruities

A possible link has been suggested between the way the brain processes the syntax of language and music. We are using eye-tracking technology to investigate the presence and significance of readers' eye movements during the processing of musical and linguistic syntactic incongruities. This study is part of a growing body of research on music and linguistic syntactic integration and may help to expand our current knowledge of the underlying mechanisms of such processes in the brain.

### Sight Reading and Perceptual Span

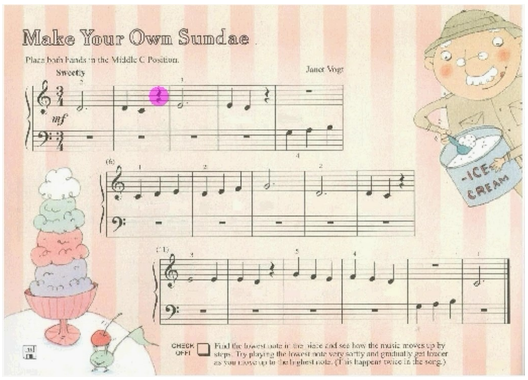
Various studies on music reading have looked at perceptual span, the region around fixation from which useful information is extracted. Reading skills and harmonic difficulties do not seem to affect the span size: good sight readers and poor sight readers share a similar size of perceptual span. However, notational complexity (the amount of visual information within a certain region) does have an impact on eye movement during sight reading, and this effect might influence the perceptual span. This study looks at the effects of notational complexity on the perceptual span of university piano majors during sight playing by using the moving window paradigm: only a portion of the score around the fixation point is available to the reader and the music only appears when the eyes are looking ahead. Results show that notational complexity does not affect the perceptual span but does affect the performance level and patterns of eye movement.

# Research Projects

## Music Reading

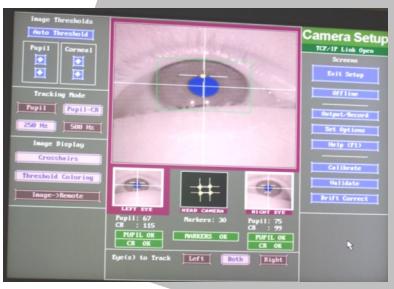
### Music Book Illustrations

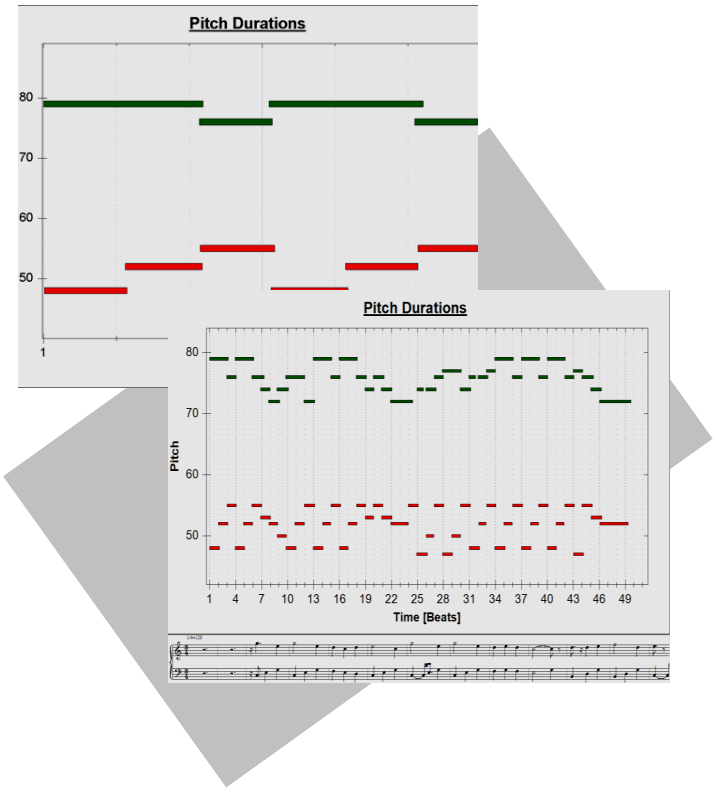
Piano method books are among the principal tools for instruction to young beginners. Many of these books have a large number of colourful illustrations raising significant questions from a music-reading perspective: what is the impact of these colourful sketches on music reading and does their presence lower the quality of performance? Eye-tracking technology is used to study the number and duration of fixations on the picture zone relative to the music zone. During sight reading, the number of fixations recorded in the picture zone indicates a cognitive distraction from the musical notation.




### Information Technology Development: MIDIator Software

Development of a computer analysis tool to evaluate variations of dynamics and timing in piano students' performances.




### A Detailed Analysis of Methods for Introducing Musical Symbols

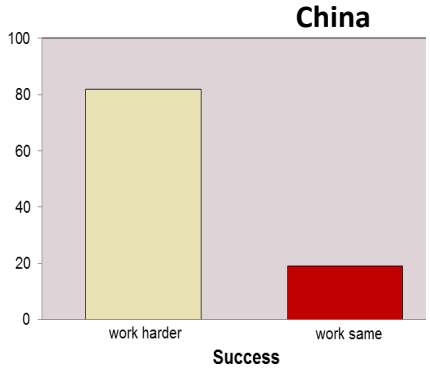
This study investigates how musical symbols are introduced in piano method books: their sequencing, the way they are reinforced, and the pace of introduction. With software created in the Piano Lab, each musical piece in a method book is transformed into a MIDI file that provides a summary of the pitches and note durations presented in the musical excerpt. To complete the analysis, manual tracking of rests, dynamics and articulations is carried out.

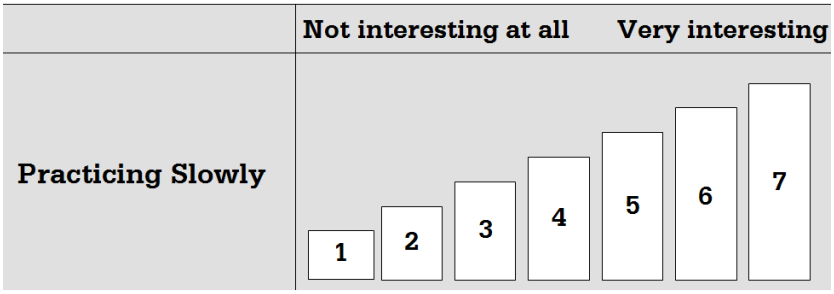
# Research Projects

## Motivation

### Measuring Young Piano Students' Motivation

One of music education's major concerns is the challenge of motivating students to continue learning piano. A high percentage of young students stop piano lessons within the first 18 months, before they begin to master the instrument. A likely correlate of this dropout rate is insufficient motivation. To provide better support for children's piano learning, we developed the Survey of Musical Interest (SMI) to measure young piano students' degree of motivation and their interest in piano-related activities. We now have a version in English, French, Chinese and Finnish. We are currently studying correlations between levels of motivation and various factors like gender, teaching method used and parental involvement. Over the next two years, we will survey a new group of students with a revised questionnaire.




### Cross-Cultural Analysis

Asian students learning piano achieve very good results in examinations and competitions. It has been suggested that there must be some link between this success and the motivation levels in these students. This study was designed to measure and compare the motivational level of private piano students in North America and in the People's Republic of China (PRC) using the SMI. The results indicated that Chinese students attribute success to hard work while North American students attribute success and failure to talent or lack of talent. The three-year study will conclude this year.


### Motivation and Practice Strategies

This study examined piano students' perceptions of their practice strategies and the relationship of these strategies to motivation. Students answered a survey entitled Young Piano Students' Perceptions of their Practice Strategies, in which they ranked their perception of a number of strategies on a scale of 1 to 7. This project continues, with a focus on new variables related to practice strategies.

### Asian Ascendance at International Piano Competitions (NEW)

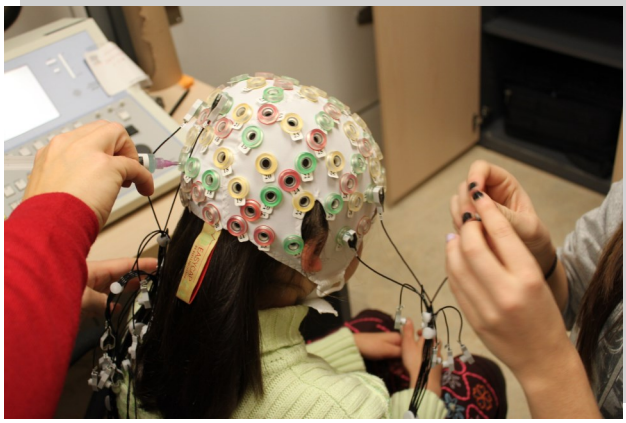
Asian pianists are known for winning international piano competitions. This analysis revealed that the percentage of Asian winners has gone from 23% in the 1990s to over 35% after 2000. South Korea is in 1st place, Japan in 2nd and China in 3rd, but the Chinese had the greatest percentage increase over the last two decades.

# Research Projects

## Health Issues

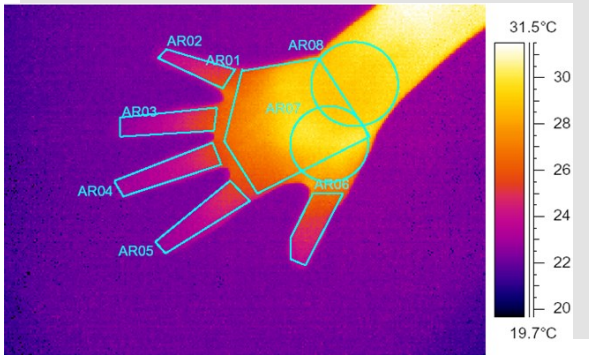
### The Effects of Piano Lessons on the Central Auditory System in Hearing-Impaired Children (NEW)

This project is studying the brain response of children with hearing loss before and after a series of piano lessons. More specifically, we are interested in the effect of piano lessons on the brain development of children with cochlear implants.



### Piano Playing-Related Health Problems

New technological resources allow us to apply scientific research methods to diagnose, treat, and prevent injuries related to piano performance.

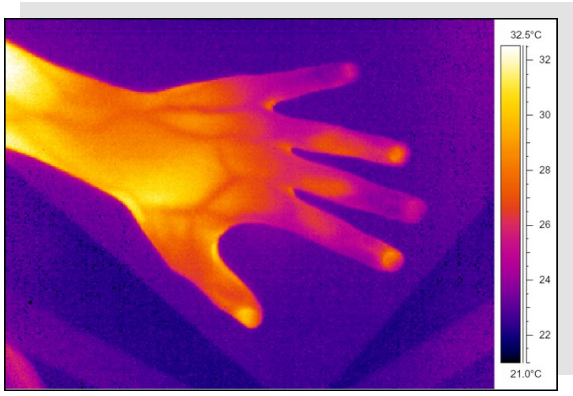


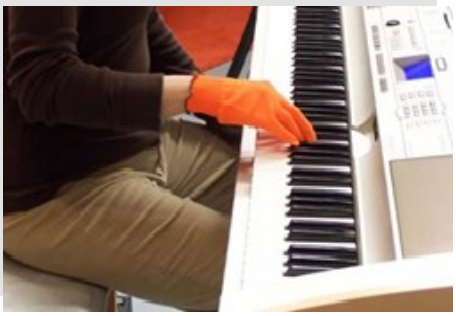

### Studying Piano Technique with Motion-Visualizing Software

Specialized motion-visualizing software, which graphically represents movement, is used to analyze piano technique.

### Thermal Imaging

Infrared video technology is used to monitor the temperature of a performer's hands, arms, shoulders, neck and face during piano playing, thereby enabling researchers to pinpoint underlying muscle tension and inflammation.



### The Effects of Somatic Approaches on the Physiology of Pianists (NEW)

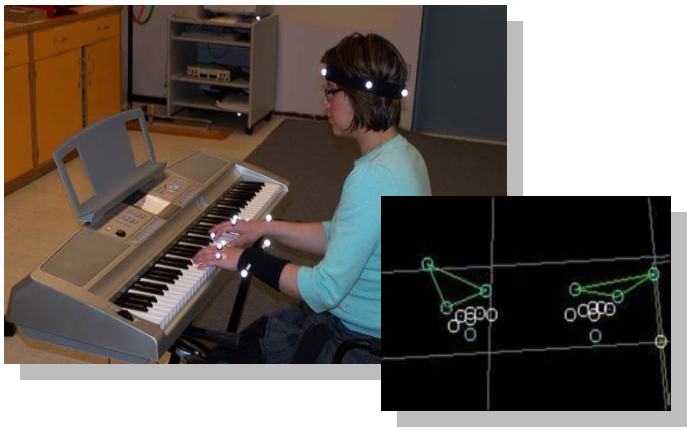
With a growing awareness of playing-related problems, many musicians have tried various injury prevention and rehabilitative measures to reduce the effects of pain and injuries or to prevent the onset of problems: physiotherapy, the Feldenkrais Method, Body Mapping training, and the Alexander Technique. Previous research relied mostly on self-reports based on the perception of teachers or the testimonies of the musicians themselves. The purpose of this project is to study whether the perceived effectiveness of somatic approaches affects the pianist's physiology and can be accounted for by external observation in terms of posture and movement at the instrument as well as tone quality and expressiveness of the performance.

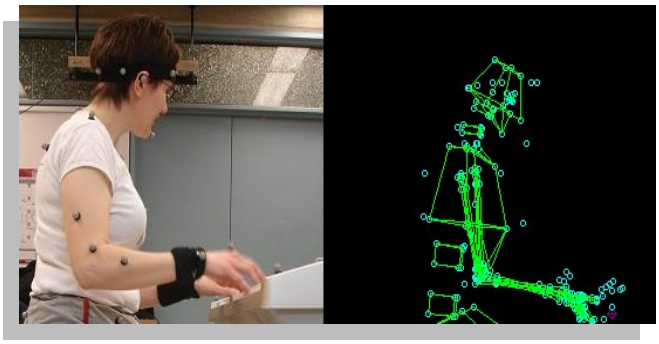
# Research Projects

## Physical Aspects of Piano Playing

### Motor Coordination

A sophisticated video-camera system is used to study the finger, hand and arm movements of piano performers. Spatio-temporal and musical constraints in motor coordination during piano performance are also being studied.



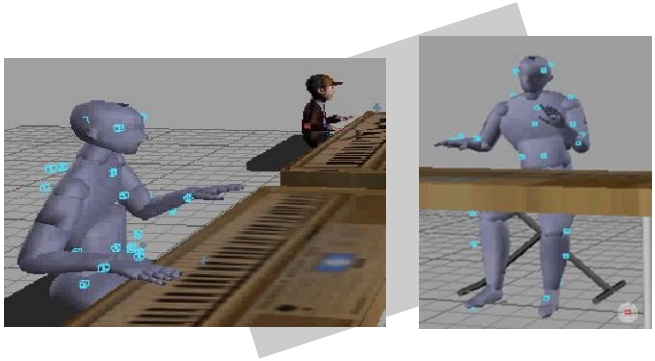


### Assessing and Measuring Changes in the Playing Postures of Pianists in Response to Somatic Training (NEW)

It is often assumed that somatic training is beneficial for musicians whose misalignment in performance postures and improper playing techniques might cause playing-related health problems. The main obstacle confronting researchers interested in assessing the impact of somatic training is the lack of reliable postural measurement tools. This study explores how various qualitative and quantitative techniques could be used to assess postural changes.

### Biomechanics of the Warm-Up

This study considers the possible biomechanical implications of warm-up ranging from changes in joint or muscle properties to changes in the nervous system. This interdisciplinary study, now in its early stages, will compare the descriptions of warm-up in the musical literature with a number of related activities including athletics and typing. Preliminary results suggest that although the activities are clearly different, musicians can benefit from some approaches seen in other disciplines such as athletics.

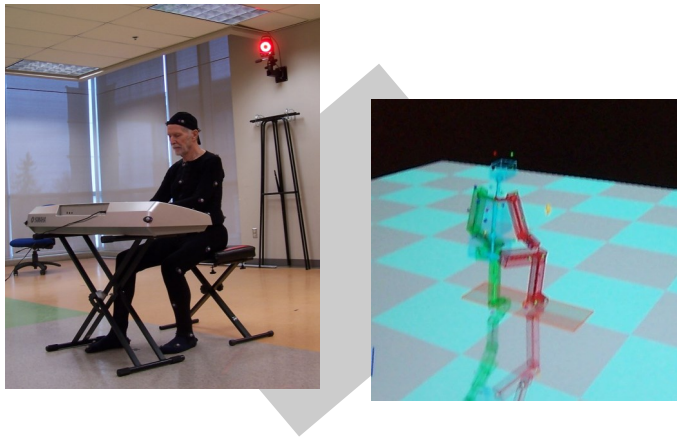


### 3D Visualization of Piano Playing

A specialized motion-capture system provides novice piano students with a 3D representation of a professional performance to help them visualize body posture at the piano.

### An Analysis of Terminology Describing the Physical Aspects of Piano Technique (NEW)

The purpose of this study was to see whether problematic language might contribute to the systemic confusion found in piano technique and to identify the main sources of confusion in the use of language: inconsistent and inaccurate use of terms; wavering between scientific, common, and invented language; challenges in describing opposing qualities that come from tension and relaxation; and failing to differentiate between the individual subjective experience and the mechanics of movement.



# Research Projects

## Video-Mediated Learning

### Video Database Development as a Tool in Piano Pedagogy

Over the last two years, the Piano Lab has developed a resource database for piano students and teachers. More than 700 piano teaching video clips dealing with different teaching strategies, period instruments and the use of technology while teaching are available for research purposes in the Lab's Resource Centre.

### Video Monitoring in the Piano Studio

The Piano Lab is examining the use of video cameras as teaching tools and research aids in the study of piano playing and learning.


## Distance Education

### Cross-Border Piano Teaching

The Piano Lab has conducted a research project to explore the methodology for starting young students in piano via distance education. The challenges are many: there is no physical contact, no face-to-face interaction, and parental involvement may take on extra importance when there is no teacher in the room. The participants were two students in Indiana and a third in the Lab's studio. Data gathered is being analyzed using SCRIBE software to compare the behaviours of teacher, students and parents in a traditional studio set-up and a distance environment.

### Inuit Keyboarding Project

As part of an intensive program that explores music teaching in the context of videoconferencing, the Piano Lab provided keyboard lessons via videoconference to a group of young children in Kangiqsualujjuag, Northern Quebec.

### Trans-Atlantic Piano Teaching: The Alliance of Technology & Pedagogy

With research partners in Finland, we have developed computer programs and software that provide the essential technical interface and teaching tools for distance piano teaching.

# Research activities in 2012-2013

## METHODS

### Researchers:

Gilles Comeau—Music, University of Ottawa
Yuanyuan Lu—Music, University of Ottawa
Kimberley Sundell—Music, University of Ottawa
Susan Mielke—Music, University of Ottawa
Caio Elias—Electrical Engineering, University of Ottawa, Exchange student from Brazil

### Papers in refereed journals:

Comeau, G. (in press). Colourful illustrations in piano method books: A pilot project investigating eye focus. *Music Teachers National Association e-Journal.*

### Poster presentations:

Elias, C., Comeau, G. & Liu, Y. (2013, July). *Effect of pictures in piano method books.* Science without Borders Symposium, University of Ottawa, Ottawa, ON.

Sundell, K. & Comeau, G. (2013, July). *Comparing comprehensive musicianship education in piano method books.* Canadian Federation of Music Teachers' Associations, Halifax, NS.

Sundell, K. & Comeau, G. (2013, March). *Comprehensive musicianship education: How well are piano method books doing?* Music Teachers National Association 2013 National Conference, Anaheim, CA.

Sundell, K., Comeau, G. (2012, November). *Comprehensive musicianship and beginner piano method books: A content analysis*. Québec Conference, Québec, QC.

### Oral Communications:

Comeau, G. (2012, November). *Music lessons: Enriching your child's musical experience*. Continuing Education Conference, University of Ottawa, Ottawa, ON.
Invited Guest Speaker.

Comeau, G. (2012, October). *What can research on piano learning bring to the private piano teacher?* Ontario Registered Music Teachers' Association Conferences, University of Ottawa, Ottawa, ON.
Invited Guest Speaker.

Comeau, G. (2012, March). *Exploring period keyboard instruments: A masterclass for students and teachers*.
University of Ottawa, Ottawa, ON.
Invited Guest Speaker.

Comeau, G. (2012, Febuary). *Comparing Dalcroze, Orff and Kodàly: Choosing your approach to teaching music*.
Dalcroze Society of Canada. Toronto, ON.
Invited Guest Speaker.

## MUSIC READING

### Researchers:

Gilles Comeau—Music, University of Ottawa
Bruno Émond—Cognitive Science, National Research Council
Sylvie Hébert—Audiology, Université de Montréal
Ramesh Balasubramaniam—Neurosciences, University of California
Stephanie Ahken—Medicine, University of Ottawa
Yifei Liu—Music, University of Ottawa
Kimberley Sundell—Music, University of Ottawa
Yuanyuan Lu—Music, University of Ottawa
Allyshia Sewdat—Computer Engineering, University of Ottawa
Flora Nassrallah—Audiology, University of Ottawa
Hoang Pham—Medicine Student, University of Ottawa

### Papers in refereed journals:

Émond, B., Comeau, G. (2013). Cognitive modelling of early music-reading skill acquisition for piano: A comparison of the Middle-C and intervallic methods. *Cognitive Systems Research, 24*, 26-34.

Ahken, S., Comeau, G., Hébert, S., Balasubramaniam, R. (2012). Observable eye-movement patterns during the processing of linguistic and music syntactic incongruities. *Psychomusicology: Music, Mind & Brain, 22*(1), 18-25.

Comeau, G. (2012). Playing by ear in the Suzuki Method: Suporting evidence and concerns in the context of piano playing. *The Canadian Music Teacher*, *62*(3), 42.

Comeau, G. (2012). Suzuki's mother-tongue approach: Concerns about the natural learning process. *The Canadian Music Teacher, 63*(1), 59.

### Papers in refereed conference proceedings:

Émond, B. & Comeau, G. (2012). Cognitive modelling of early music-reading skill acquisition for piano. *Proceedings of the 11th International Conference on Cognitive Modeling 2012*. Berlin: Universitaetsverlag der TU Berlin, 43-48.

### Oral Communications:

Émond, B., Comeau, G. (2013, October). *Cognitive modelling of early music-reading skill acquisition for piano: A comparison of the Middle-C and intervallic methods.* Institute of Cognitive Science (ICS), Carleton University, Ottawa, ON.

Liu, Y.F., Comeau, G. (2012, November). *The use of eye-tracking technology to measure young piano students' eye movement during sight reading pieces from method books.* Québec Conference, Québec, QC.

Liu, Y.F., Comeau, G. (2012, November). *The effect of notational complexity on advanced piano students' perceptual span and performance quality during sight reading.* Québec Conference, Québec, QC.

# Research activities in 2012-2013

## MOTIVATION

### Researchers:

Gilles Comeau—Music, University of Ottawa
Veronika Huta—Psychology, University of Ottawa
Matti Ruippo—Music, Pirkanmaa University of Applied Sciences, Finland
Jaruno Perttunen—Music, Pirkanmaa University of Applied Sciences, Finland
YiFei Liu—Human Kinetics, University of Ottawa
Yuanyuan Lu—Music, University of Ottawa
Émilie Bertrand-Plouffe—Music, Undergraduate Certificate in Piano Pedagogy
Paula Croucher—Music, Undergraduate Certificate in Piano Pedagogy
Nicole Pachla—Music, University of Ottawa
Lisa Pitre—Music, University of Ottawa
Sylvain Wellman-Frenette—Music, University of Ottawa
Michelle Iznardo—Psychology, University of Ottawa
Karen King—Music, Graduate Diploma in Piano Pedagogy, Long-distance student
Matheus Rocha—Music, University of Ottawa, Exchange Student from Brazil
Elizabeth Szczepanski—Music, Graduate Diploma in Piano Pedagogy

### Papers in refereed journals:

Comeau, G., Huta, V., Liu, Y., Smith, J. Relationships between children's motivation for learning piano and parental influences. Manuscript submitted for publication.

Comeau, G., Huta, V., Liu, Y. (in press). Work ethic and motivation in Chinese and North American children learning to play the piano. *International Journal of Music Education.*

### Poster presentation:

Rocha, M. & Comeau, G. (2013, July). *Asian ascendance at international Piano Competitions.* Science without Borders Symposium, University of Ottawa, Ottawa, ON.

## MEDIA COVERAGE

Piano lab takes a multidisciplinary approach to learning and teaching. (2013, October). *University of Ottawa Gazette.*

Quelle histoire : L'effet Mozart. (2013, September). *Radio-Canada.*

## PHYSICAL ASPECTS OF PLAYING PIANO

### Researchers:

Gilles Comeau—Music, University of Ottawa
Donald Russell—Mechanical Engineering, Carleton University
Michèle Wheatley-Brown—Music, University of Ottawa
Grace Wong—Music, University of Ottawa
Jillian Beacon—Music, University of Ottawa

### Papers in refereed journals:

Wheatley-Brown, M., Comeau, G., Russell, D. (in press). An analysis of terminology used to describe tension and relaxation in piano technique. *Arts Biomechanics.*

## HEALTH ISSUES

### Researchers:

Gilles Comeau—Music, University of Ottawa
Donald Russell—Mechanical Engineering, Carleton University
Isabelle Cossette—Music, McGill University
Monique Frize—Biomedical Engineering, Carleton University
Erin Dempsey—Music, University of Ottawa
Flora Nassrallah—Audiology, University of Ottawa
Saffa Mohamed—Computer Engineering, Carleton University
Caroline Andison—Mechanical Engineering, Carleton University
Karen McCarthy—Biomedical Engineering, Carleton University
Amineh Koravand—Audiology, University of Ottawa
Pascale Martel-Lamothe—Audiology, University of Ottawa
Audrey Mo—Music, University of Ottawa
Sandra Markovic—Music, University of Ottawa

### Papers in refereed journals:

Nassrallah, F., Comeau, G., Russell, D., Cossette, I. (2013). Coordination between breathing and different movement markers during pianists' performance tasks. *Perceptual & Motor Skills*, *116*(1), 1-20.

### Oral Communication:

Russell, D., McDill, M. & Comeau, G. (2012, June). *A biomechanical investigation of warm-up procedures for musicians*. Carleton University, Ottawa, ON.

## VIDEO-MEDIATED LEARNING AND DISTANCE EDUCATION

### Researchers:

Gilles Comeau—Music, University of Ottawa
Matti Ruippo—Music, Pirkanmaa University of Applied Sciences, Finland
Martin Brooks—Computer Engineering, National Research Council
Bruno Émond—Cognitive Science, National Research Council
Erin Parkes—Music, Graduate Student at McGill University
Sean Done—Music, University of Ottawa
Yuanyuan Lu—Music, University of Ottawa

### Papers in refereed journals:

Parker, E., Comeau, G. (in press). The Inuit keyboarding project: A cross-cultural distance teaching experience. *Journal of Technology in Music Learning*.

# Research Partners

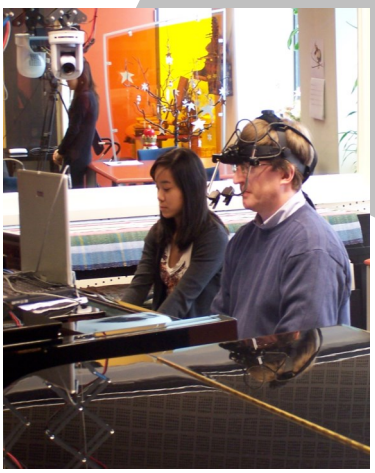
## Music

**Denyse Blondin** (Université du Québec à Montréal)
**William Budai** (Indiana University-Purdue University at Indianapolis, IUPUI)
**Philip Donner** (Virtuosi, Finland)
**Francis Dubé** (Université Laval)
**Elaine Keillor** (Carleton University)*
**Daniel Landes** (Belmont University, Tennessee)
**Louise Mathieu** (Université Laval)*
**Jaruno Perttunen** (Pirkanmaa University of Applied Sciences, Finland)
**Kathleen Riley** (New York University)
**Matti Ruippo** (Pirkanmaa University of Applied Sciences, Finland)*
**Lauri Väinmaa** (Pirkanmaa University of Applied Sciences, Finland)

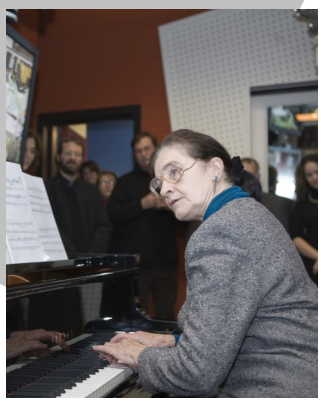
**Louise Mathieu**

## Engineering

**Martin Brooks** (National Research Council)*
**Abdulmotaleb El Saddik** (University of Ottawa)*
**Monique Frize** (University of Ottawa)*
**Christophe Herry** (Carleton University)
**WonSook Lee** (University of Ottawa)
**Pierre Payeur** (University of Ottawa)*
**Donald Russell** (Carleton University)*
**Shervin Shirmohammadi** (University of Ottawa)*



**Donald Russell**



**Elaine Keillor**

## Neurosciences

**Ramesh Balasubramaniam** (University of California)
**Amineh Koravand** (University of Ottawa)*

## Cognitive Sciences

**Bruno Émond** (National Research Council)*

**Ramesh Balasubramaniam**

**Ursula Stuber**

## Psychology

**Alain Desrochers** (University of Ottawa)
**Isabelle Green-Demers** (Université du Québec en Outaouais)
**Veronika Huta** (University of Ottawa)*
**Virginia Penhune** (Concordia University)*
**Laurel Trainor** (McMaster University)*

## Communications

**John Spence** (Communications Research Centre)

## Health Sciences

**Nadine Bressler** (Epidemiology, Toronto)
**Isabelle Cossette** (McGill University)*
**Ursula Stuber** (Université Laval)*

## Library Network

**Cécile Prud'homme** (University of Ottawa)

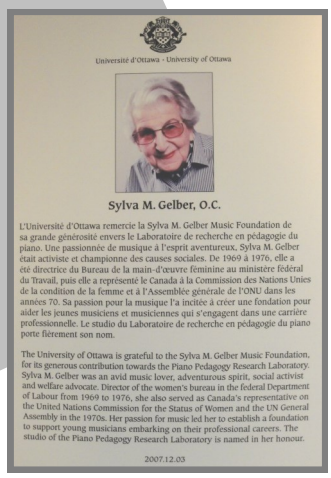
***Currently working on projects**

# Fundraising

## Building an Endowment Fund

Our ability to pursue the Laboratory's mission depends on the availability of financial resources. We are very grateful to all the Friends of the Piano Lab who have provided financial support to address the Laboratory's emerging needs and priorities.

The **Sylva M. Gelber Foundation** supports research and training of undergraduate and graduate students in piano pedagogy research.



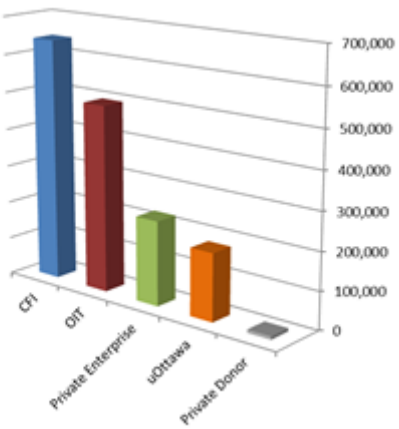


The naming of the Ann Southam Room is a way of further honouring Ann's continuous support for the Lab.

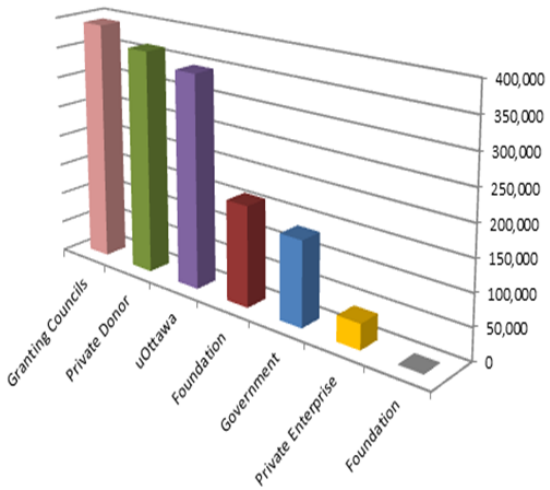
**Ann Southam** (1937-2010) was one of the Piano Lab's staunchest supporters over the years. She came to the Lab's official opening ceremonies and became a member of the Friends of the Piano Pedagogy Research Laboratory. Her particular interest in the Lab's research on music reading led her to establish the Ann Southam Music Reading Fund to promote the Lab's research in this area.

**Robert Taylor's Musician Health Fund**
was established in May 2013 to enable the Piano Lab to respond to the emerging needs and priorities linked to piano playing-related health problems and injury prevention programs.

### Infrastructure Funding: $1.55M




### Research Funding: $1.44M



# Media

***Piano lab takes a multidisciplinary approach to learning and teaching***
October 2013

***Quelle histoire*** : L'effet Mozart, Radio Canada
September 2013

***La leçon de piano*** : Découverte, Radio Canada
March 2008

***Entretien avec Gilles Comeau*** : Le monde selon Mathieu – CBOF-FM
October 2007

***Notes on the future*** - The Sunday Edition – CBC Radio ONE
January 2006

***Piano revolution*** - The National – CBC News
October 2005

***Entretien avec Gilles Comeau*** : Bernier et Cie – CBOF-FM
October 2005

***Les samedis du monde*** : La recherche au Laboratoire de recherche en pédagogie du piano
May 2011

***Campus*** : Un Laboratoire de recherche en pédagogie du piano
July 2011

***Blessures chez les artistes*** - Panorama : TFO
May 2007

***Le laboratoire de recherche en pédagogie du piano*** - Panorama : TFO
January 2007

***Hitting the right notes: New scientific lab keys on piano pedagogy***
Summer 2006

***Les mystères de l'apprentissage du piano*** : Via TVA
February 2006

***Le pourquoi des fausses notes***
March 2006

***Un clavier bien mesuré***
March 2006

***Why doesn't every good boy do fine?***
2005-2006

***Piano: Thermal imaging cameras***
December 2005

***Young pianist loves his lesson, but really hates to practise***
December 2005

***Professors tune in to musicians' pain: Carpal tunnel syndrome, other conditions could be eased using new imaging system***
February 2005

***Piano "Keys"*** - Tech Now – CTV News
October 2005

***Teaching leadership: A laboratory with rhythm***
August-September 2006

***A high note for piano research***
December 2005

***The finger fixer: Gilles Comeau***
June 2005

***Harmony in the laboratory***
Spring 2005

***Inuits au diapason d'Ottawa***
January 2005

***Keys to success***
November-December 2007