



Laboratoire de recherche
en pédagogie du piano

Piano Pedagogy
Research Laboratory

• Annual Report • 2007

Mission

Promote multidisciplinary research in the field of piano pedagogy in order to establish a better understanding of piano learning and piano teaching processes.

Goals

Establish a common field of interest and facilitate collaborations among researchers in a variety of disciplines: music, education, cognitive sciences, psychology, neuroscience, health sciences, engineering, and information technology.

Offer academic programs which will allow students to train in piano pedagogy research and actively participate in projects of the multidisciplinary teams associated with the Piano Laboratory.

Build significant partnerships with other research institutions, piano teachers' associations, and members of the private sector.

Vision

Become the foremost authority in piano pedagogy research and training.

Build a world-class laboratory distinguished for

- its quest for excellence
- the quality of its learning environment
- its passion for knowledge and innovative thinking

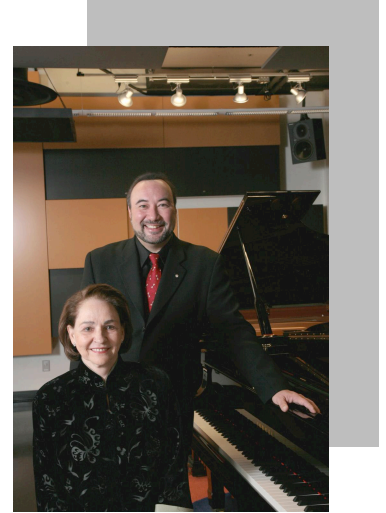
Honorary Co-Chairs

Internationally-acclaimed pianist Jon Kimura Parker and Aline Chrétien, wife of the former Canadian Prime Minister, the Right Honorable Jean Chrétien, have become honorary co-chairs of the *Friends of the Piano Pedagogy Research Laboratory*.

For both co-chairs, the Piano Laboratory is a fascinating and exciting research facility. According to Mr. Parker: "The first thing that hits you when you walk in this laboratory is how inviting and colourful and friendly it is here. Because of how everything is set up: camera on tracks, pianos, television screens, you really get the impression that incredible things are happening here."

Mr. Parker praised the innovative and compelling research conducted at the laboratory: "Piano pedagogy hasn't really changed in a long time. Here at the Piano Pedagogy Research Laboratory they're actually finding new information, bringing new data to teachers and pianists, and teaching us new techniques. This is extraordinary."

Madame Chrétien has been following the work at the lab with great interest: "Learning music is not always easy, and this laboratory is discovering things about learning to play the piano that are astonishing."



Milestones

- 07** New partnerships for doctoral programs are created: PhD in Music (Concentration Music Education), at the Laval University, and PhD in Human Kinetics, at the University of Ottawa.

The Piano Laboratory receives a major donation of \$150,000 from the Sylva M. Gelber Music Foundation.

The Piano Laboratory receives a donation of \$50,000 to create the Ann Southam Music Reading Fund.
- 06** Routledge has accepted **Piano Pedagogy: A Research and Information Guide** for publication. The book, developed by the Piano Pedagogy Research Laboratory's faculty and graduate students, is an annotated bibliography of a wide range of sources in piano pedagogy and the first reference book of its kind in the discipline.
- 05** Official opening of the Piano Laboratory.
- 04** Construction of the Piano Laboratory gets underway.

Undergraduate Certificate in Piano Pedagogy approved.
- 03** Funding from Ontario Innovation Trust (OIT) matching grant and other partners bring the laboratory's total financial support to \$1,246,642.

Graduate Certificate in Piano Pedagogy Research approved.
- 02** Canada Foundation for Innovation (CFI) grant approved for the creation of the Piano Pedagogy Research Laboratory.

Message from the Director



The Laboratory...Spotlight on Vision 2010

In 2005, the University of Ottawa launched Vision 2010, its strategic plan for the following five years at this institution. The Piano Pedagogy Research Laboratory has fully incorporated the Vision 2010 objectives and established its development priorities in accordance with the University's major directions.

As it celebrates its second year, the Piano Pedagogy Research Laboratory is at a crucial stage in its development as a research-intensive facility. Its comfortable and functional physical environment offer research partners and students a conducive setting for discovering, inventing and learning. Its wide range of undergraduate, graduate and professional programs creates a vigorous and dynamic milieu. The high quality of our laboratory's many interdisciplinary research projects, the dissemination of our results both nationally and internationally and the recognition our work has received are all evidence of our growth and success.

I am pleased, therefore, to present the Piano Pedagogy Research Laboratory's 2007 Annual Report. The report sets out the progress we have made over the last year and illustrates how the laboratory's newest achievements in the areas of research, academic planning and resource planning manifest the Vision 2010 directives.

Gilles Comeau, Director
Piano Pedagogy Research Laboratory

Committed Human Resources

The success of our laboratory depends in large part on the calibre and commitment of the administrative and technical support staff. We have recruited highly qualified individuals who have the expertise necessary to deal with the complexity of the laboratory's research-intensive environment.

Hiring an administrative assistant has made a huge contribution to our success in recent months and has considerably lightened the heavy administrative load on the director and the graduate students.

Over the last year, many students filled administrative and technical positions at the laboratory. Thanks to their hard work we have been able to bring the Resource Centre up to date, create a new website, develop and produce new promotional material, organize many visits to the laboratory, coordinate funding campaign activities, maintain distance education courses, keep the computer systems and multimedia equipment functioning well, and take over the production of the audiovisual material needed by the laboratory.



Milada Medinić,
Administrative Assistant

ADMINISTRATIVE STAFF	TECHICAL STAFF
Tamar Dubuc - Music Bonnie Huor - Music Nisreen Jardaneh - Music Catherine Lemay - Music YiFei Liu - Science Flora Nassrallah - Science Michelle Vandal - Music	Baruyr Baghdasarian - Engineering Houman Khamseh-Zadeh - Engineering Adam Saikaley - Music

Academic Programs

The academic programs associated with the Piano Pedagogy Research Laboratory are research driven:

- We are conducting first-class research, which in turn enriches what and how we teach.
- We encourage interaction and co-operative effort between students and researchers, which promotes diversified modes of learning.

Graduate Programs

PhD in Music (Concentration Music Education)

Allows students to register in Laval University's PhD program in music while completing their residency and conducting their research at the Piano Pedagogy Research Laboratory under the supervision of the Laboratory's researchers. Students are also able to integrate into existing research groups at the University of Ottawa.

PhD in Human Kinetics with a Research Topic in Piano Pedagogy

Allows students to complete a PhD in Human Kinetics with a research topic in piano pedagogy, conducting their research in the Piano Laboratory.

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, working in depth on a specific project dealing with piano learning or piano teaching, and writing a dissertation.

Master of Music with Major Research Paper in Piano Pedagogy

Allows students to become familiar with existing research in the field and integrate into multidisciplinary research groups while completing a major research paper.



ENROLMENT

Ph.D.

In progress 2

Master's

In progress 3

Completed 6

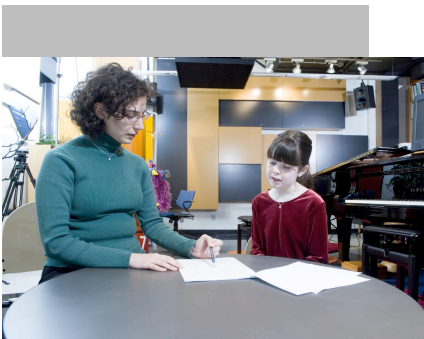
Graduate certificate

In progress 1

Completed 6

Undergraduate certificate

In progress 2



Graduate Certificate 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.

Undergraduate Programs

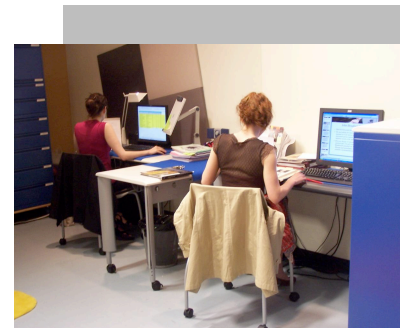
- Over the last year, we started undergraduate-level pilot projects that integrate research and learning.
- We are exploring ways of expanding the undergraduate scholarship program so that more students can participate in laboratory research.

Undergraduate Certificate in Piano Pedagogy

Offers courses with a practical orientation for professional piano teachers who are already teaching in private studios and music schools. This program builds on their existing teaching skills and knowledge, and introduces the latest developments in the field of piano pedagogy.

Continuing Education

- We are presently looking into how to introduce continuing-education programs in piano pedagogy to meet the needs of music teachers' professional associations.



Students

The Piano Laboratory places its students at the core of its educational mission.

We do our utmost to help our students

- Receive an excellent education
- Take advantage of an exceptional learning environment
- Acquire a passion for research
- Expand their knowledge through interdisciplinary horizons that are as broad as possible.

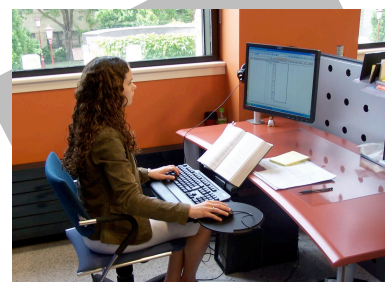
We offer our students

- A bilingual laboratory that promotes French and English
- An environment that values cultural diversity; over 10 different nationalities are represented in the laboratory.

We make every effort so that our students

- Can take full advantage of our research infrastructure
- Can benefit from a truly unique research experience.

We want to offer our student body the experience of a learning community that is attentive, stimulating, dynamic and effective. To this end, every member of the laboratory takes part in our educational and research mission.



Scholarships

Over \$40,000 in research scholarship and graduate assistantships have been awarded by the Piano Pedagogy Research Laboratory this past year.

CONGRATULATIONS TO OUR GRADUATES !

Master of Arts with Thesis in Piano Pedagogy

Julia Brook (2006–2007). *Video database as an asynchronous tool in piano pedagogy.*

Nisreen Jardaneh (2006–2007). *Piano students' perceptions of their practice strategies.*

Master of Music with Major Research Paper in Piano Pedagogy

Jason Ray (2005–2007). *The use of technology for the measurement and analysis of piano performance with a discussion of the implications for piano pedagogy.*

YiFei Liu (2005–2007). *Cross-cultural analysis of motivation levels of piano students in China and in North America.*

Master of Applied Science in Engineering

Martin Côté (2005–2007). *Adaptive segmentation for human gesture analysis in unconstrained environment* (Electrical Engineering, University of Ottawa).

Christy Vant (2005–2007). *Driving point impedance measurements at the wrist during piano playing* (Mechanical and Aerospace Engineering, Carleton University).



Graduate Certificate in Piano Pedagogy Research

Erin Parkes (2005–2007)

Mélina Dalaire (2004–2007)

A Unique Research Facility

A laboratory of this calibre and specialization for studying piano learning and piano teaching is truly unique.

The benefits from its accessibility to students, researchers and teachers in this field of research are far reaching and significant.

Two Principal Functions

- Advanced scientific research in piano pedagogy
- Specialized hands-on training in piano pedagogy research

This complex, research-intensive laboratory depends on integrated, reliable and user-friendly information systems and technologies that ensure effective learning, discovering and management.

The Piano Laboratory's enhanced access to multi-media technology has resulted in new levels of excellence in teaching and research.

Studio

Equipment

- Two 7'6" acoustic pianos with optical sensors and integrated MIDI operating systems (Disklaviers)
- Analog and digital video cameras
- Large LCD screens

Recording studio acoustics

- Moveable acoustic panels allowing the customization of spatial resonance within the room
- Soundproof walls impeding sound pollution from exterior sources



Conference Room

Multi-purpose environment ideal for

- Seminars, lectures, workshops
- Video conferencing
- Distance education

Resource Centre

Large reference collection for researchers

- Theses and research documents
- Piano teaching materials
- Scores
- Audiovisual materials



Multi-Media Control Centre

Analog and digital video equipment

- Records piano lessons directly in VHS, DVD, or mini DV format
- Generates picture-in-picture and instant video replay

Video conferencing capacity

- Connects international research teams via overseas MIDI transfer
- Facilitates two-way piano teaching between the laboratory and distant, often remote, locations

Production centre

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

Period Instrument Studio

A selective collection of historic instruments

- 6-octave Viennese Graf pianoforte (built by R. J. Regier)
- John Morley London clavichord (reproduction)
- Children's Butterfly piano (original instrument reconstructed by Don Côté)

Soon to arrive

- Lindholm-Söderström clavichord (built by Andrew Lagerquist)

Research Partners

The Piano Laboratory builds productive partnerships bringing together the forces of knowledge, innovation and development. By ensuring high-quality national and international ties with partners from many different disciplines, we strengthen our competitive edge and cultivate innovative multidisciplinary research.

Music

Bill Budai (Indiana University)
Philip Donner (Virtuosi, Finland)
Elaine Keillor (Carleton University)
Kathleen Riley (New York University)



Health Sciences

Isabelle Cossette (McGill University)
Ursula Stuber (Université Laval)

Library Network

Cécile Prud'homme (University of Ottawa)

Psychology

Alain Desrochers (University of Ottawa)
Isabelle Green-Demers (Université du Québec en Outaouais)
Virginia Penhune (Concordia University)

Engineering

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

Communications

John Spence (Communications Research Centre)

Cognitive Sciences

Bruno Emond (National Research Council)

Neurosciences

Ramesh Balasubramaniam (University of Ottawa)

Student Research Involvement

Music

Émilie Bertrand (Undergrad. Cert. Student)
Mélina Dalaire (M.A. Student)
Shirley Ho (Grad. Cert. Student)
Nisreen Jardaneh (Ph.D. Student)
Mary Claire Lazure (Grad. Cert. Student)
Catherine Lemay (M.A. Student)
Hiroko Nakagawa (Undergrad. Cert. Student)



Human Kinetics

YiFei Liu (Ph.D. Student)
Flora Nassrallah (M.Sc. Student)



Engineering

Silvain Bériault (MAsc. Student)
Martin Côté (MAsc. Student)
Christophe Herry (Ph.D. Student)
Christy Vant (MAsc. Student)

Alumni

Leana Azareal
Ann Babin
Julia Brook
Haodan Brown
Alicia Desjardins
Rosemary Harden
Line Morais
Erin Parkes
Jason Ray

Research

A scientific approach to piano pedagogy, by its very nature, must bring art and science together. It must be done within a multidisciplinary framework and link musicians who are interested in research and researchers who are interested in music.

The Piano Laboratory is focusing on seven main areas of research:

- ◆ Defining a New Field
- ◆ Music Reading
- ◆ Injury Prevention
- ◆ Physical Aspects of Piano Playing
- ◆ Video-Mediated Learning
- ◆ Distance Piano Teaching
- ◆ Motivation

Defining a New Field

Establishing the Field of Study for Piano Pedagogy Research

A theoretical examination to define the field of study for piano pedagogy so as to establish it as an independent area of research.

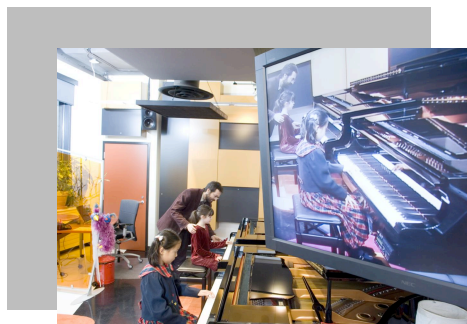


- **Funding**

\$65,765 Social Sciences and Humanities Research Council of Canada (SSHRC) (2003 – 2006)

- **Researcher**

Gilles Comeau – Music, University of Ottawa



Piano Pedagogy: A Research and Information Guide

Development of a guide outlining the multidisciplinary resources available for research in piano pedagogy, with descriptive information on reference works and selected scholarly sources.

- **Funding**

\$1,000 Routledge Press (2007)

- **Researchers**

Gilles Comeau – Music, University of Ottawa
Nisreen Jardaneh – Graduate Student, Music, University of Ottawa
Julia Brook – Graduate Student, Music, University of Ottawa
Catherine Lemay – Graduate Student, Music, University of Ottawa
Méline Dalaire – Graduate Student, Music, University of Ottawa
Mary-Claire Lazure – Certificate Student, Music, University of Ottawa
YiFei Liu – Graduate Student, Music, University of Ottawa



Piano Pedagogy: A Research and Information Guide

- **Part I: Access Points for Research in Piano Pedagogy**
 - 1 Indexes and Databases
 - 2 Bibliographies
- **Part II: Sources of Information for Research and Learning**
 - 3 Encyclopedias
 - 4 Journals and Magazines
 - 5 Dissertations
 - 6 Tests and Measurements
 - 7 Monographs

Music Reading

Detailed Inventory of Musical Symbols in Piano Method Books

Creation of a database tracking musical symbols in various collections of North American and European piano method books, as well as the pace at which these symbols are introduced and their frequency.

- **Researcher**

Gilles Comeau – Music, University of Ottawa



Coordination of Eye and Hand Movements While Reading Music at the Piano

Project to extend our fundamental understanding of music reading processes in young piano students and how these relate to the execution of motor actions in piano playing.

- **Funding**

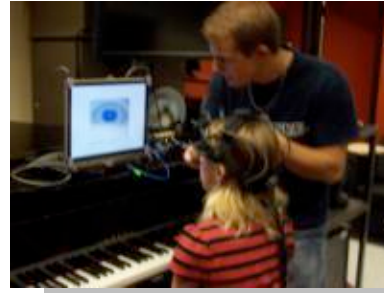
\$118,890 Social Sciences and Humanities Research Council of Canada (SSHRC) (2007 – 2010)

- **Researchers**

Ramesh Balasubramaniam – Human Kinetics, University of Ottawa

Gilles Comeau – Music, University of Ottawa

Alain Desrochers – Psychology, University of Ottawa



Evaluation and Measurement of Music Reading Ability

Comparing various methods of assessment such as sight-reading tests, performance scales, analysis of errors made during sight-reading performance and evaluation by experts.

- **Funding**

\$50,000 Ann Southam Music Reading Fund (2007)

- **Researchers:**

Catherine Lemay – Graduate Student, Music, University of Ottawa

Brian Richardson – Graduate Student, Human Kinetics, University of Ottawa

Gilles Comeau – Music, University of Ottawa

Ramesh Balasubramaniam – Human Kinetics, University of Ottawa

Information Technology Development: MIDlator Software

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

- **Funding**

\$10,000 Development of Interdisciplinary Initiatives, University of Ottawa (2004 – 2005)

\$ 6,230 Senate Committee on Teaching, University of Ottawa (2004 – 2005)

- **Researchers**

Shervin Shirmohammadi – Engineering and IT, University of Ottawa

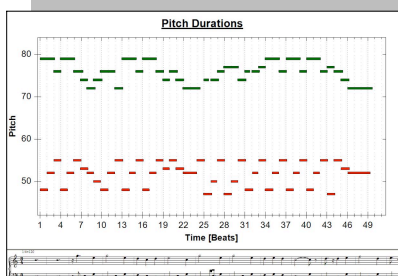
Gilles Comeau – Music, University of Ottawa

Ali Khanafer – Undergraduate student, Engineering and IT, University of Ottawa

Mathieu Kuhn – Undergraduate student, Engineering and IT, University of Ottawa

Michel Khoury – Undergraduate student, Engineering and IT, University of Ottawa

Hanieh Khamseh-Zadeh – Undergraduate student, Engineering and IT, University of Ottawa



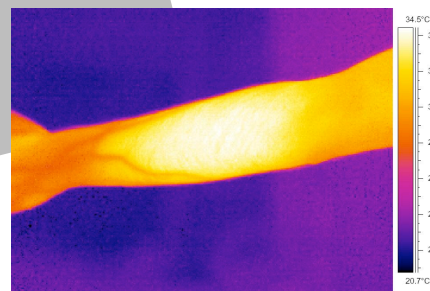
Injury Prevention

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.

• Researchers

Christopher Herry – PhD student, Systems and Computer Engineering, Carleton University
Monique Frize – Engineering and Information Technology, University of Ottawa
Rafik Goubran – Systems and Computer Engineering, Carleton University
Gilles Comeau – Music, University of Ottawa

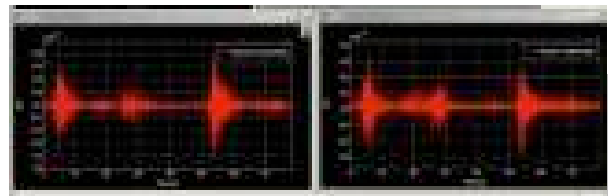


Respiratory Measures

These experiments will determine whether the respiratory patterns of novice and expert musicians are factors in the performance of piano pieces. The study will provide a clearer understanding of the physiological aspects involved in piano learning and performing.

• Researchers

Flora Nassrallah – Graduate Student, Human Kinetics, University of Ottawa
Gilles Comeau – Music, University of Ottawa
Isabelle Cossette – Music, McGill University



Piano Playing-Related Health Problems

New technological resources provide ways to apply scientific research methods that are effective in the diagnosis, treatment and prevention of injuries related to piano performance.

• Researchers

Donald Russell – Engineering and Design, Carleton University
Gilles Comeau – Music, University of Ottawa
Ursula Stuber – Music, Université Laval
Elaine Keillor – Music, Carleton University
Kathleen Riley – Music, New York University



Physical Aspects of Piano Playing

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.

- **Funding**

\$19,620 Interfaculty Collaborative Research Initiatives, University of Ottawa (2005)

- **Researchers**

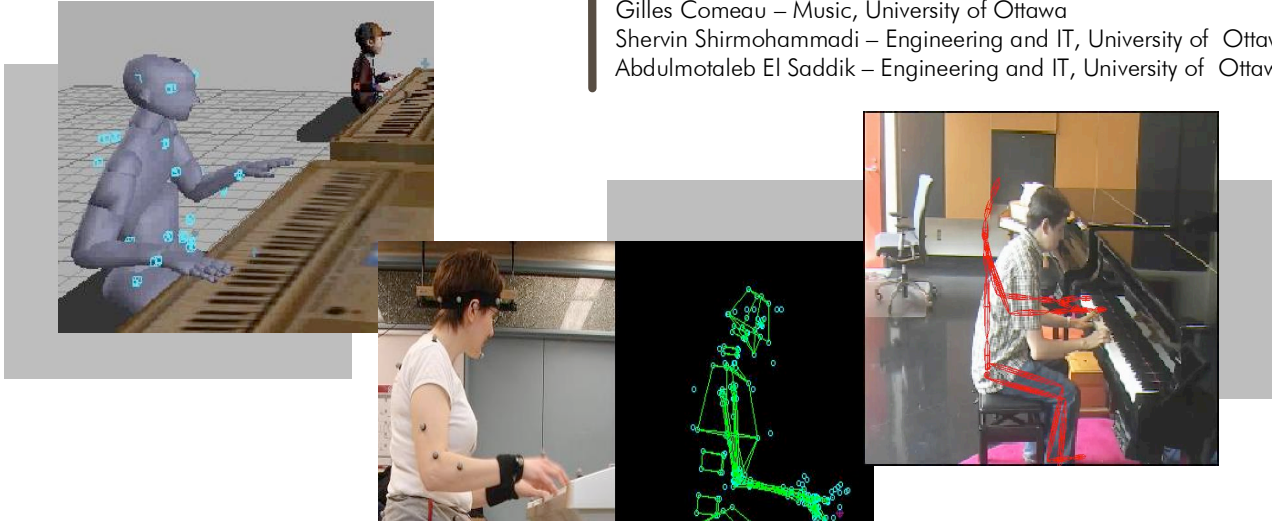
Won-Sook Lee – Engineering and IT, University of Ottawa

Javier Mora – Graduate Student, Computer Sciences, University of Ottawa

Gilles Comeau – Music, University of Ottawa

Shervin Shirmohammadi – Engineering and IT, University of Ottawa

Abdulmotaleb El Saddik – Engineering and IT, University of Ottawa



Analyzing Movement, Force, and Timing in Piano Performance

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.

- **Funding**

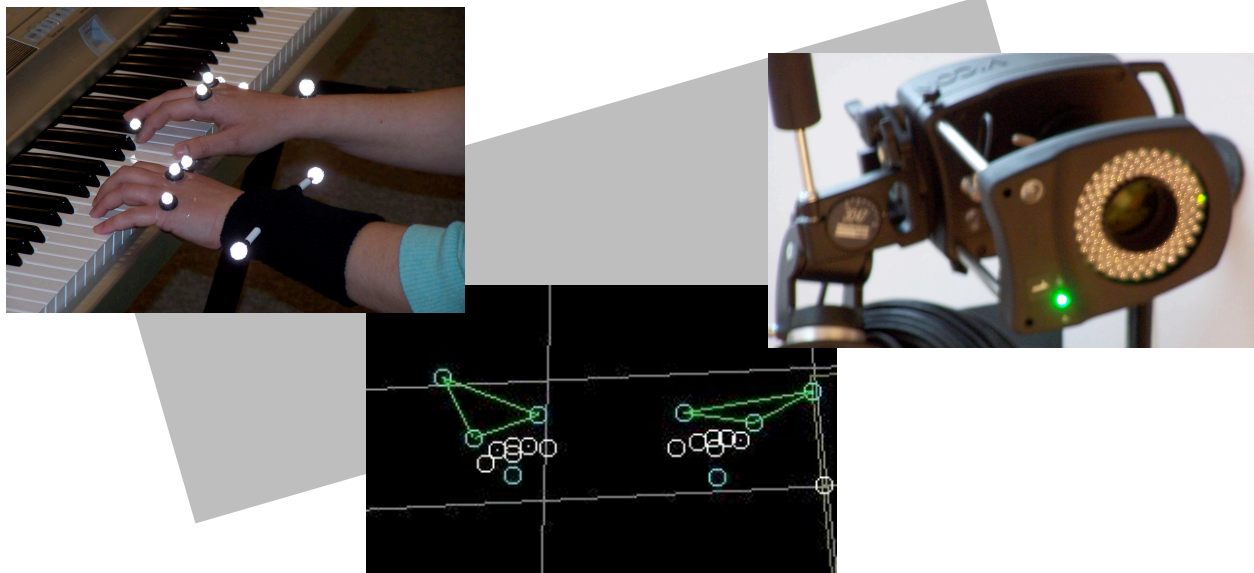
\$10,000 Development of Interdisciplinary Initiatives, University of Ottawa (2006 – 2008)

- **Researchers**

Ramesh Balasubramaniam – Human Kinetics, University of Ottawa

Donald Russell – Engineering and Design, Carleton University

Gilles Comeau – Music, University of Ottawa



Video-Mediated Learning

Video Monitoring in the Piano Studio

Examination of the efficient use of video cameras as teaching tools and research aids in the study of piano playing and learning.

- **Researchers**

Martin Brooks – Computational Video, National Research Council of Canada

Gilles Comeau – Music, University of Ottawa

John Spence – Applications Technologies, Communications Research Centre of Canada



Vision-Based Monitoring of a Pianist's Movements

Development of a group of software tools designed to help teachers identify and analyze their students' patterns of movement in piano performance.

- **Funding**

\$11,600 Development of Interdisciplinary Initiatives, University of Ottawa
2004 – 2005

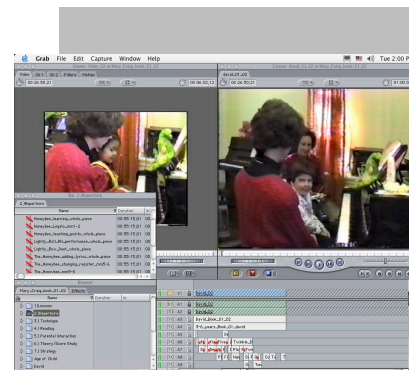
- **Researchers**

Pierre Payeur – Engineering and IT, University of Ottawa

Gilles Comeau – Music, University of Ottawa

Silvain Bériault – Graduate Student, Engineering and IT, University of Ottawa

Martin Côté – Graduate Student, Engineering and IT, University of Ottawa



Video Database as an Asynchronous Tool in Piano Pedagogy

Development of a set of technologies for video indexing that will be used in distance professional development for piano teachers.

- **Researchers**

Julia Brook – Graduate Student, Music, University of Ottawa

Bruno Emond – Computational Video, National Research Council of Canada

Martin Brooks – Computational Video, National Research Council of Canada

Gilles Comeau – Music, University of Ottawa

Distance Piano Teaching

Music Grid Project

Participation in an intensive program that explores music teaching in the context of broadband videoconferencing. Keyboard lessons are provided via videoconference to a group of young children in Kangiqsualujjuaq, Northern Quebec.

- **Funding**

\$33,600 Yamaha Canada (In-kind contribution) (2005 – 2007)

- **Researchers**

Martin Brooks – Computational Video, National Research Council of Canada

John Spence – Applications Technologies, Communications Research Centre of Canada



Trans-Atlantic Piano Teaching: The Alliance of Technology and Pedagogy

Development of computer programs and software that will provide the essential technical interface and teaching tools for distance piano teaching.

- **Funding**

\$40,000 International Creative Research Awards, University of Ottawa (2005 – 2007)

\$40,000 Virtuosi – International Centre of Chamber Music, Finland (2005 – 2007)

- **Researchers**

Philip Donner – Virtuosi – International Centre of Chamber Music, Finland

Gilles Comeau – Music, University of Ottawa

Bruno Emond – Computational Video, National Research Council of Canada

Martin Brooks – Computational Video, National Research Council of Canada

Erin Parkes – Graduate Student, Music, University of Ottawa

Cross-Border Piano Teaching

Study of authentic distance learning environments using anthropologically derived research methods to analyze the responses of teachers and learners.

- **Researchers**

Mélina Dalaire – Graduate Student, Music, University of Ottawa

Gilles Comeau – Music, University of Ottawa

William Budai – Music, IUPUI Music Academy, Indiana University

Nisreen Jardaneh – Graduate Student, Music, University of Ottawa

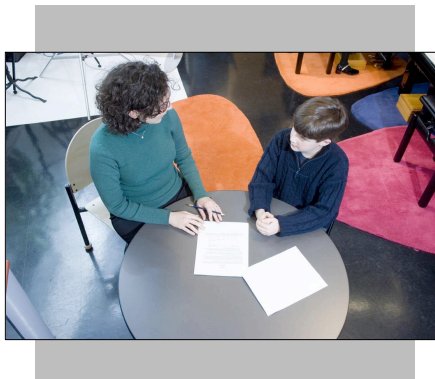
Elaine Keillor – Music, Carleton University



Motivation

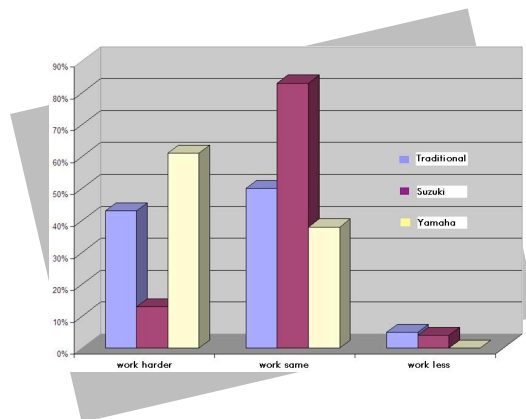
Relationship between Motivation and Piano-Performance Indicators

Development of a psychometric scale that successfully measures the motivational levels of piano students.



• Researchers

Alain Desrochers – Psychology, University of Ottawa
Gilles Comeau – Music, University of Ottawa
Nisreen Jardaneh – Graduate Student, Music, University of Ottawa
Isabelle Green-Demers – Psychology, Université du Québec en Outaouais



Cross-Cultural Analysis

Comparative analysis of the motivation levels of piano students from various cultural backgrounds, living in North America and abroad, with a corresponding investigation into parental styles and involvement.

• Researchers

YiFei Liu – Graduate Student, Music, University of Ottawa
Gilles Comeau – Music, University of Ottawa
Nisreen Jardaneh – Graduate Student, Music, University of Ottawa

音乐兴趣爱好调查 Survey of Musical Interests

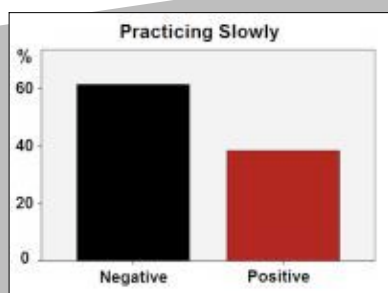


Motivation and Practice Strategies

Examination of piano students' perceptions of their practice strategies and the relationship of these strategies to motivation.

• Researchers

Nisreen Jardaneh – Graduate Student, Music, University of Ottawa
Gilles Comeau – Music, University of Ottawa



Defining a New Field

- Comeau, G., et al. (In preparation). **Piano pedagogy: A research and information guide**. New York: Routledge.
- Comeau, G. (2007). **Le rôle de la recherche multidisciplinaire dans la pédagogie pianistique**. *Pianistes du XXe siècle : critique, pédagogie, interprétation*, 33, 143–162.
- Comeau, G. (2007). **Le laboratoire de recherche en pédagogie du piano**. *Revue de recherche en éducation musicale*, 26, 177–188.
- Comeau, G. (2006). **Recherche scientifique et pédagogie du piano**. *Revue de recherche en éducation musicale*, 24, 1–11.
- Comeau, G. (Ed.). (2006). **La recherche multidisciplinaire en pédagogie du piano**. *Revue de recherche en éducation musicale - Actes du colloque, octobre 2005*. Québec : Université Laval. 144 p.

Motivation

- Desrochers, A., Comeau, G., Jardaneh, N., Green-Demers, I. (2006). **L'élaboration d'une échelle pour mesurer la motivation chez les jeunes élèves en piano**. *Revue de recherche en éducation musicale*, 24, 13–33.

Music Reading

- Shirmohammadi, S., Comeau, G., Khanafar, A. (2006). **MIDlator: Analyzing students' piano performance**. *Revue de recherche en éducation musicale*, 24, 35–48.

Injury Prevention

- Russell, D. (2006). **Establishing a biomechanical basis for injury preventive piano pedagogy**. *Revue de recherche en éducation musicale*, 24, 105–117.
- Herry, C., Frize, M., Goubran, R. A., Comeau, G. (2006). **Étude thermographique de pianistes lors d'une séance de travail : évolution de la température superficielle des muscles et première interprétation**. *Revue de recherche en éducation musicale*, 24, 89–104.

Physical Aspects of Piano Playing

- Côté, M., Payeur, P., Comeau, G. (2006). **Comparative study of adaptive image segmentation techniques for gesture analysis in unconstrained environments**. *Proceedings of the IEEE International Workshop on Imaging Systems and Techniques*, 28–33.
- Payeur, P., Côté, M., Comeau, G. (2006). **Les technologies de l'imagerie au service de l'analyse du mouvement en pédagogie du piano**. *Revue de recherche en éducation musicale*, 24, 61–87.

Video-Mediated Learning

- Bériault, S., Payeur, P., Comeau, G. (2007). **Flexible multi-camera network calibration for human gesture monitoring**. *IEEE International Workshop on Robotics and Sensors Environments*, Ottawa, 12–13.
- Côté, M., Payeur, P., Comeau, G. (2007). **Video segmentation for markerless motion capture in unconstrained environments**. *Proceedings of the 3rd International Symposium on Visual Computing (ISVC)*, Lake Tahoe, 791–800.
- Emond, B., Barfurth, M., Comeau, G., Brooks, M. (2006). **Technologies d'annotation vidéo et leurs applications à la pédagogie du piano**. *Recherche en éducation musicale*, 24, 49–60.

Communications in 2006-2007

Defining a New Field

- Comeau, G. (2007, October). **La recherche en pédagogie du piano : méthodologies et approches multidisciplinaires**. Université Laval, Quebec City, Quebec.
- Comeau, G. (2007, March). **Science and piano pedagogy: The role of multidisciplinary research**. Schulich School of Music, McGill University, Montreal, Quebec.
- Comeau, G. (2006, October). **Les nouvelles technologies comme outil de recherche en pédagogie du piano**. *Journées francophones de recherche en éducation musicale*, Université Laval, Quebec City, Quebec.
- Comeau, G. (2006, October). **Pédagogie du piano : nouvelles perspectives**. *Lecture Series*, Université Laval, Quebec City, Quebec.



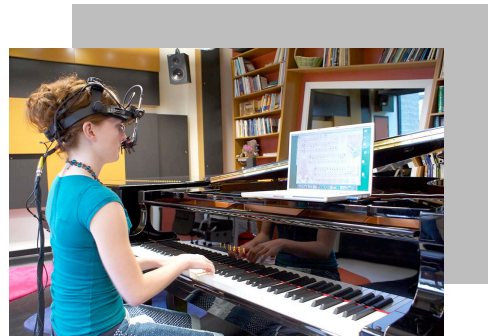
Motivation



- Jardaneh, N. (2007, November). **Piano students' perceptions of effective practice strategies**. *Séminaire de recherche*, Quebec City, Quebec.
- Jardaneh, N., Comeau, G. (2007, May). **Motivation: The challenge of young piano students**. *Canadian University Music Society*, Montreal, Quebec.
- Jardaneh, N. (2006, May). **The development of a scale to measure young piano students' degree of motivation**. *The University of Western Ontario Graduate Student Symposium*, London, Ontario.
- Jardaneh, N. (2006, April). **The development of a scale to measure the degree of motivation for young piano students**. *University of Ottawa Graduate Student Symposium*, Ottawa, Ontario.

Music Reading

- Comeau, G., Lemay, C. (2007, May). **Music reading skills of young piano students: Taxonomy of the musical codes**. *Canadian University Music Society*, Montreal, Quebec.
- Ray, J. (2007). **A content analysis of musical notation in ten contemporary north american piano method book primers**. *McGill Graduate Symposium*, Montreal, Quebec.



Injury Prevention

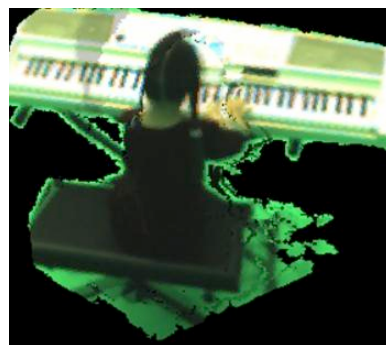
- Russell, D., Vant, C., Ray, J., Brook, J., Comeau, G. (2007, May). **Biomechanical implications inherent in descriptions of piano technique**. *Canadian University Music Society*, Montreal, Quebec.



Communications in 2006-2007

Video-Mediated Learning

- Comeau, G. (2007, November). **Les nouvelles technologies et la pédagogie du piano.** *FAMEQ*, Drummondville, Quebec.
- Comeau, G. (2007, October). **Scientific Experimentation and New Technology: What Do They Have to Do With Piano Pedagogy?** *EPTA Conference*, Isidor Bajic Music School, Novi Sad, Serbia.
- Jardaneh, N., Comeau, G. (2006, April). **Use of audiovisual communication and piano teaching.** *Videoconference presentation to the Finnish TEKES delegation at CRC*, Ottawa, Ontario.
- Brook, J., Comeau, G. (2006, April). **Video reference database.** *Videoconference presentation to the Finnish TEKES delegation at CRC*, Ottawa, Ontario.
- Comeau, G. (2006, March). **Canadian initiatives in music performance, research, and teaching.** *Internet 2 Music Symposium*, Indiana University.



Distance Piano Teaching



- Comeau, G., Dallaire, M. (2007, November). **Cross-border piano project.** *McGraw Hill Ryerson Higher Education Conference*, Ryerson University, Toronto, Ontario.
- Budai, W., Comeau, G., Brooks, M., Dallaire, M. (2007, June). **Internet video-streamed performance: Disklavier connectivity.** *Sixteenth Annual International Music Technology Conference and Workshop*, Indiana University School of Music at IUPUI, Indianapolis, Indiana.
- Comeau, G., Dalaire, M. (2007, May). **Ethnographic research design: Piano lessons and VC technology.** *Canadian University Music Society*, Montreal, Quebec.
- Dallaire, M., Comeau, G. (2006, October). **Étude ethnographique de cours de piano transatlantique par vidéoconférence.** *Journées francophones de recherche en éducation musicale*. Université Laval, Quebec City, Quebec.
- Comeau, G. (2006, September). **Using videoconferencing and the Internet to share data and conduct research.** *College Music Society Conference*, University of Texas, San Antonio, Texas.
- Comeau, G., Ress, F. J. (2006, August). **Using the Internet and Internet2 in music performance, research and teaching.** *Distance Learning Conference*, Madison, Wisconsin.

Conferences, Symposia, Lectures, Workshops

The Piano Pedagogy Research Laboratory organized the following events:

October 2007 Piano Performance Under the Microscope *

Presenter

Kathleen Riley – Music, New York University



May 2007 New Teaching and Research Tools in Piano Pedagogy

Presenters

Donald Russell – Mechanical and Aerospace Engineering, Carleton University

Francis Dubé – Music, Université Laval

Gilles Comeau – Music, University of Ottawa

Nisreen Jardaneh – Music, University of Ottawa

Runa Das – Psychology, Carleton University

Virginia Penhune – Psychology, Concordia University

April 2007 4th Annual Colloquium on Music Pedagogy

Presenters

Catherine Lemay – Music, University of Ottawa

Erin Parkes – Music, University of Ottawa

YiFei Liu – Music, University of Ottawa

Kenda Kalverboer – Music, University of Ottawa

Shirley Ho – Music, University of Ottawa



March 2007 Key-Read Workshop *

Presenter

Jean Warner – Founder of the Key-Read music reading method

March 2007 Piano Score Memorization with the Aid of Micro-Structural References *

Presenter

Francis Dubé – Musique, Université Laval

March 2007 Music and Breathing: An Overview *

Presenter

Isabelle Cossette – Psychology, McGill University

November 2006 The Path to Pain-Free Performance

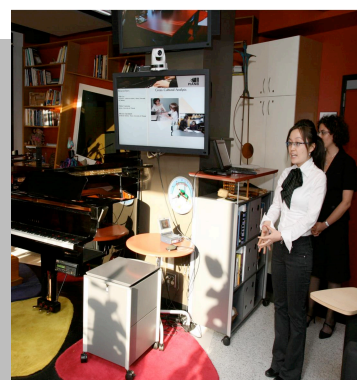
Presenter

Donald Himes – Royal Conservatory of Music

November 2006 Melody Sings First: Computational Approaches to Piano Performance *

Presenter

Werner Goebel – Music, McGill University



* In collaboration with the Music Department of the University of Ottawa

Media Coverage

Newspapers

LE DEVOIR

Le pourquoi des fausses notes
March 2006

Un clavier bien mesuré
March 2006



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

OTTAWA CITIZEN

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

LeDroit

Inuits au diapason d'Ottawa
January 2005

Magazines & Newsletters

LABBUSINESS

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



Keys to success
November-December 2007

U University Affairs Affaires universitaires

Teaching leadership: A laboratory with rhythm
August-September 2006

A high note for piano research
December 2005

TIME

The finger fixer: Gilles Comeau
June 2005

TABARET

Harmony in the laboratory
Spring 2005

Television & Radio



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



Blessures chez les artistes - Panorama - TFO
May 2007

Le laboratoire de recherche en pédagogie du piano - Panorama - TFO



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



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

Presentations and Virtual Tours

The Laboratory fulfills its social responsibilities by showcasing the innovative aspects of its infrastructure and its research, giving presentations and providing guided tours, both virtual and actual.

- **McGraw Hill Ryerson Higher Education Conference**, Ryerson University, Toronto, Ontario.
- **The 29th EPTA Conference**, Isidor Bajic Music School, Novi Sad, Serbia.
- **Graduate Studies at the Faculty of Arts Open House**, University of Ottawa, Ottawa, Ontario.
- **Séminaire de recherche**, Université Laval, Quebec City, Quebec.
- **CFI Annual Banquet**, Ottawa, Ontario.
- **Music Education Technology Symposium, FiSME** (The Finish Society of Music Education), University of Jyväskylä, Finland.
- **Family Music Fair**, University of Ottawa, Ottawa, Ontario.



- **The Sixteenth Annual International Music Technology Conference and Workshop**, Indiana University School of Music at IUPUI, Indianapolis, Indiana.
- **Canadian University Music Society**, Montreal, Quebec.
- **OCRI Research Event**, University of Ottawa, Ottawa, Ontario.
- **Pianistes d'aujourd'hui Conference**, Observatoire musical français, University of Paris-Sorbonne, Paris, France.

- **Information Technology (IT) Fair**, University of Ottawa, Ottawa, Ontario.
- **The Collaborative Conference 2007**, Music Teachers Association, Toronto, Ontario.
- **Schulich School of Music**, McGill University, Montreal, Quebec.
- **ORTMA Provincial Conference**, Ottawa, Ontario.
- **Afternoon tea at the York Club**, Toronto, Ontario.



Guided Tours

The piano lab was honoured to welcome over 450 visitors during the past two years.

Distinguished guests

- Rt. Honorable Andrienne Clarkson (former Governor General of Canada)
- His Excellency Nabil Barto, Ambassador of Jordan and his wife, Her Excellency Bruna Weick
- Maestro Pinchas Zukerman (Conductor and Artistic Director, National Arts Centre)
- James Parker (Pianist, Gryphon Trio)
- Jean-Paul Sévilla (Professor emeritus, University of Ottawa)
- John Houston (Filmmaker)
- Dr. Sahar Mulhem (Professor from Kuwait University)
- Benita Valente (Reknowned opera singer)
- Jeanne D'Arc Sharp (Widow of Mitchell Sharp)
- Dale Wheeler (Chair of Performing Arts at Red Deer College, Alberta)
- Paul Hoffert (CEO of Noank Media Inc., Faculty Fellow at Harvard University Law School)
- Toru Saruya (President of Yamaha Canada)
- Jun Fujimoto (Keyboard Division, Yamaha Canada)
- Robert Barg (Vice-President, Musical Instrument Group, Yamaha Canada)
- Françoise Regnard (Centre de formation des enseignants de la musique, Île de France, France)
- Madeleine Zulauf (FMR Zulauf, Suisse)
- Sylvain Jaccard (Haute École Pédagogique Bejune, Suisse)
- Suzanne Corbeil (Vice-President of External Relations, CFI)
- David Bogart (Vice-President, OIT)
- Barbara Reynolds (Senate Committee Clerk)
- Philip Steenkamp (Deputy Minister of Training, Colleges and Universities)
- Alastair Glass (Deputy Minister of Research and Innovation)
- Isabelle Peretz, (Co-director, BRAMS)
- Caroline Palmer (Sequence Production Lab, McGill University)
- Laurel Trainor (McMaster Institute for Music and the Mind)

Organizations

- Board of the Sylva M. Gelber Music Foundation
- Finnish TEKES Delegation
- Ontario Registered Music Teachers' Association (ORMTA)
- Ottawa Suzuki piano teachers
- Ontario Music Educators' Association (OMEA)
- Music for Young Children (MYC)
- Young Artists Program of the National Arts Centre
- University of Ottawa Summer Enrichment Mini-Courses in music



Visit of Rt. Honorable Andrienne Clarkson



Visit of His Excellency Nabil Barto,
Ambassador of Jordan
and Mr. & Mrs. Williams



Board of the Sylva M. Gelber Music Foundation



Finnish TEKES Delegation

Fundraising Campaign

Building Our Endowment Fund

Our ability to pursue the laboratory's mission depends on the availability of financial resources.

The University of Ottawa is committed to raising a \$2 million endowment in support of the Piano Pedagogy Research Laboratory. This important new initiative will help us raise a sustainable pool of financial support to address the laboratory's emerging needs and priorities.

The board of the Sylva M. Gelber Foundation approved a contribution of \$150,000 towards an endowed investment to support research and the training of undergraduate and graduate students in piano pedagogy research at Piano Laboratory.

"Board members who visited the laboratory were extremely impressed, not only with the ground-breaking research going on there, but with the obvious commitment and excitement of the students who are participating in its evolution. The multi-disciplinary approach that supports so many different aspects of the research and the technological refinement and complexity of the installation reinforce the impression of a truly world-class initiative." Tim Plumptre, President of the Board



Generous Benefactors



In 2007, many donors have shown their support by contributing to research projects, students' scholarships and lecture series as well as by providing in-kind contributions.

Canadian composer Ann Southam provided a major gift, establishing the Ann Southam Music Reading Research Fund in support of research examining how piano students learn to read and express musical notation through well-controlled gestures at the keyboard.

In addition, Donald Himes, a former faculty member at the Royal Conservatory of Music, provided funding to establish a workshop series exploring healthier approaches to playing the piano or other musical instruments.

An anonymous donor contributed to our scholarship fund by providing research fellowships for our graduate students.

Yamaha Canada has made an in-kind contribution to the Piano Laboratory by offering 4 pianos, including a Disklavier, on a three-year loan. The pianos have been assigned to three of our research partners' laboratories, considerably expanding our research capabilities.

Gallery St.-Laurent+Hill has generously donated a painting to the Piano Laboratory. *Avant le concert* is a work by Quebec artist Renée duRocher.

Research Funding

- Canada Foundation for Innovation (CFI)
- Ontario Innovation Trust (OIT)
- Social Sciences and Humanities Research Council of Canada
- Sylva M. Gelber Music Foundation
- University of Ottawa



International Creative Research Awards
 Interfaculty Collaborative Research Initiatives Fund
 Development of Interdisciplinary Initiatives
 Senate Committee on Teaching
 Support Fund for Grant Recipients
 Faculty of Arts, Associate Dean's Fund
 Faculty of Arts Research Committee
 Central Administration

Total Funding (since 2002)

\$2,155,251

External Funding
 \$1,737,559

Internal Funding
 \$417,692

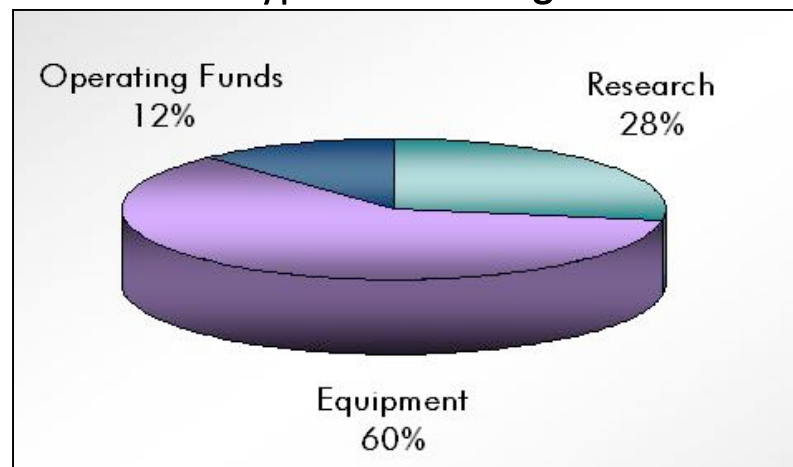
Private Sector

Yamaha Canada
 Ottawa Pianos
 Specs Audio
 Librairie du Soleil
 Groupe Archambault Inc.
 Leading Note
 Various music publishers
 (Alfred, Mel Bay, Karl Fischer,
 Hal Leonard)

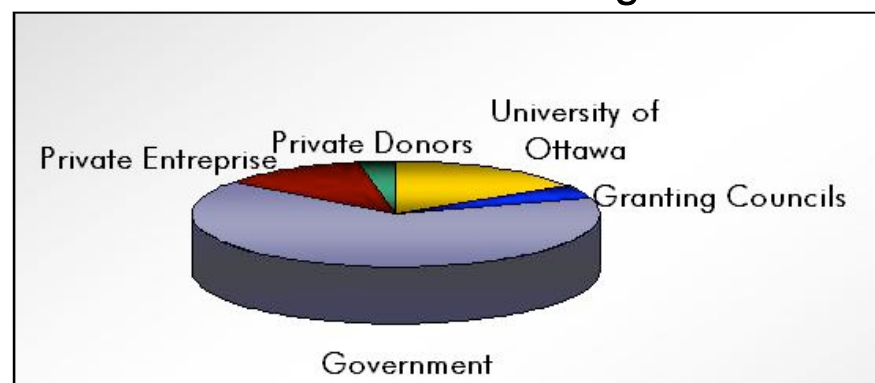
Donors

Ann Southam
 Donald Himes
 Anonymous

Type of Funding



Sources of Funding



Concept and Design: Tamar Dubuc and Nisreen Jardaneh
Layout: Nisreen Jardaneh and Milada Medinić

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