

# MICHAEL DIXON GUREVICH, PH.D.

Sonic Arts Research Centre  
School of Music & Sonic Arts  
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## ACADEMIC & PROFESSIONAL EXPERIENCE

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- JANUARY 2008–  
PRESENT** **QUEEN'S UNIVERSITY BELFAST**  
*Lecturer, Sonic Arts Research Centre, School of Music & Sonic Arts*  
Equivalent to the rank of Assistant Professor in North American system. As a Lecturer I engage in research, supervise PhD students, develop and deliver classes in our BSc in Music Technology and MA in Sonic Arts degree pathways and serve on University committees.
- SEPTEMBER 2006 –  
DECEMBER 2007** **STANFORD UNIVERSITY**  
*Postdoctoral Research Scholar, CCRMA*  
Research in interactive technologies to support human-animal communication and music interaction across local and remote networks.
- FEBRUARY 2005 –  
SEPTEMBER 2006** **INSTITUTE FOR INFOCOMM RESEARCH (I<sup>2</sup>R), SINGAPORE**  
*Associate Scientist, Sound and Interactivity Group*  
Research at an R&D institute to support growth of an interactive media industry in Singapore. Worked on development of a real-time sound synthesis platform, immersive musical multimedia applications, jamming over networks and interactive games for ringtone generation.
- SEPTEMBER 2000 –  
FEBRUARY 2005** **STANFORD UNIVERSITY**  
*Research and Teaching Assistant, CCRMA*  
Dissertation focused on computational modeling of hypothetical sound production mechanisms in whales and dolphins. Additional research dealt with measuring ensemble performance ability under conditions of latency, haptic user interfaces and controllers for interactive music.

## EDUCATION

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- SEPTEMBER 2006** **STANFORD UNIVERSITY, STANFORD, CA, USA**  
**CENTER FOR COMPUTER RESEARCH IN MUSIC AND ACOUSTICS (CCRMA)**  
*Ph.D., Computer-Based Music Theory and Acoustics*
- JUNE 2003** **STANFORD UNIVERSITY**  
*M.A., Computer-Based Music Theory and Acoustics*
- MAY 2000** **MCGILL UNIVERSITY, MONTRÉAL, CANADA**  
*B.Mus., Honours Computer Applications in Music (High Distinction)*

## TEACHING QUALIFICATION

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- DECEMBER 2010** **QUEEN'S UNIVERSITY BELFAST, BELFAST, UK**  
*Postgraduate Certificate in Higher Education Training (PGCHET)*  
UK M-Level Certificate in teaching for higher education.

## RESEARCH OUTPUTS

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- PHD DISSERTATION** Gurevich, M. (2006). *Computational Acoustic Modeling of Cetacean Vocalizations*. Stanford University.  
Advisor: Jonathan Berger  
Committee Members: Chris Chafe, Julius Smith  
Examiners: Bill Verplank, Paul DeMarinis, Mark Applebaum
- PUBLICATIONS** Gurevich, M. (2010). Guest editor's note. *Computer Music Journal* 34(4).
- Gurevich, M., & Fyans, A.C. (2010). Digital musical interactions: Performer-system relationships and their perception by spectators. Submitted to *Organised Sound*, under review.
- Gurevich, M., Marquez-Borbon, A., & Stapleton, P. (2010). Playing with constraints: Stylistic variation with a simple electronic instrument. Submitted to *Computer Music Journal*, under review.
- Chafe, C., Caceres, J. P., & Gurevich, M. (2010). Effect of temporal separation on synchronization in rhythmic performance. *Perception* 39(7), 982-992.
- Gurevich, M., Stapleton, P., & Marquez-Borbon, A. (2010). Style and constraint in electronic musical instruments. In *Proceedings of the Conference on New Interfaces for Musical Expression* (pp. 106–111).
- Fyans, A.C., Gurevich, M., & Stapleton, P. (2010). Examining the spectator experience. In *Proceedings of the Conference on New Interfaces for Musical Expression* (pp. 451–454).
- Gurevich, M., Stapleton, P., & Bennett, P. (2009). Designing for style in new musical interactions. In *Proceedings of the Conference on New Interfaces for Musical Expression* (pp. 213–217).
- Fyans, A. C., Gurevich, M., & Stapleton, P. (2009). Where did it all go wrong? A model of error from the spectator's perspective. In *Proceedings of the Conference on New Interfaces for Musical Expression* (pp. 171–172).
- Fyans, A. C., Gurevich, M., & Stapleton, P. (2009). Spectator understanding of error in performance. In *Proceedings of the Conference on Human Factors in Computing Systems Extended Abstracts* (pp. 3955–3960).
- Gurevich, M., & Treviño, J. (2007). Expression and its discontent: Toward an ecology of musical creation. In *Proceedings of the Conference on New Interfaces for Musical Expression* (pp. 106–111).
- Pendharkar, C., Gurevich, M., & Wyse, L. (2006). Parameterized morphing as a mapping technique for sound synthesis. In *Proceedings of the International Conference on Digital Audio Effects* (pp. 45–48).
- Gurevich, M. (2006). JamSpace: Designing a collaborative networked music space for novices. In *Proceedings of the Conference on New Interfaces for Musical Expression* (pp. 118–123).
- Gurevich, M. (2006). JamSpace: A networked real-time collaborative music environment. In *Proceedings of the Conference on Human Factors in Computing Systems Extended Abstracts* (pp. 821–826).
- Chafe, C., & Gurevich, M. (2004). Network time delay and ensemble accuracy: Effects of latency, asymmetry. In *Proceedings of the 117th Audio Engineering Society Convention*.

**PUBLICATIONS  
(CONTINUED)**

- Chafe, C., & Gurevich, M. (2004). Effects of latency on networked musical performance. In *Proceedings of the 2004 OpenSound Control Conference*, UC Berkeley, USA.
- Gurevich, M., Chafe, C., Leslie, G., & Tyan, S. (2004). Simulation of networked ensemble performance with varying time delays: characterization of ensemble accuracy. In *Proceedings of the 2004 International Computer Music Conference*.
- Chafe, C., Gurevich, M., Leslie, G., & Tyan, S. (2004). Effect of time delay on ensemble accuracy. In *Proceedings of the International Symposium on Musical Acoustics*.
- Wilson, S., Gurevich, M., Verplank, B., & Stang, P. (2003). Microcontrollers in music HCI instruction: Reflections on our switch to the Atmel AVR platform. In *Proceedings of the Conference on New Interfaces for Musical Expression* (pp. 24–29).
- Gurevich, M., Verplank, B., & Wilson, S. (2003). Physical interaction design for music. In *Proceedings of the 2003 International Computer Music Conference*.
- Verplank, B., Gurevich, M., & Mathews, M. (2002). The PLANK: designing a simple haptic controller. In *Proceedings of the Conference on New Interfaces for Musical Expression* (pp. 1–4).
- Gurevich, M., & von Muehlen, S. (2001). The Accordiatron: A gestural interface for interactive music. In *Proceedings of the 2001 International Computer Music Conference*.
- Gurevich, M., & von Muehlen, S. (2001). The Accordiatron: A MIDI controller for interactive music. In *Proceedings of the Conference New Interfaces for Musical Expression* (pp. 1–3).

**DEVICES,  
INTERACTIVE  
EXHIBITS &  
INSTALLATIONS**

- Stringtrees* (2010)  
Mechatronic interactive plucked string instrument
- Whispering Places* (2010)  
Multi-site networked ambisonic installation, premiered between SARC, CCRMA (Stanford) and IRCAM (Paris), September 2010
- Homemade sensors for interactive audio* (2007)  
Demo at Maker Faire, San Mateo, CA
- Augmented Reality DJ* (2006)  
Interactive exhibit with gesture tracking, head-mounted display, sound
- JamSpace* (2006)  
Jamming application for novices in isolated locations on a local network
- Stop the War Machine / Start the Peace Machine* (2003)  
Motorized microphone pendulums, multichannel interactive sound
- Glass of Water* (2003)  
Location-based installation. Robotic television, stickers, glasses of water
- The Plank* (2002)  
Haptic interface for musical interaction, with Bill Verplank
- Contraption* (2001)  
Interactive sound sculpture; wood, glass, aluminum, custom electronics
- Accordiatron* (2001)  
MIDI music controller for interactive performance with computer

**COMPOSITIONS** *War!* (2010), for 12 musicians and 2 card players  
*Mixtape Music* (2010), for 10 portable cassette players  
*On Not Knowing* (2009), for 10 voices and radios  
*Cow Pong* (2008), a competition for percussionists  
*Alpheus* (2006), for Accordiatron and computer  
*n Questions* (2003), for 8 or more voices  
*one thousand seven hundred and fourteen questions* (2002), for 8-channel tape  
*Cartography* (2001), for Accordiatron and computer  
*25 Away* (2001), for Accordiatron and computer  
*Androgyn* (2000), for soprano & baritone saxophones, computer and tape  
*We are the First* (1999), for stereo tape  
*Soft White* (1998), for alto saxophone, computer and tape

## **ENSEMBLES**

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**MUSIC ENSEMBLES** **QUBENSEMBLE (QUBE) (2008-PRESENT)**  
Co-Director of ensemble for improvisation, conduction and experimental music  
**BELFAST LEAGUE OF IMPROVISED SIGHTS AND SOUNDS (BLISS) (2008-PRESENT)**  
Ensemble dedicated to improvised new media performance  
**STANFORD IMPROVISATION COLLECTIVE [SIC] (2002-2006)**  
Trans-idiomatic improvisation with acoustic instruments and computers

## **TEACHING EXPERIENCE**

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**JANUARY 2008-  
PRESENT** **SCHOOL OF MUSIC & SONIC ARTS, QUEEN'S UNIVERSITY BELFAST**  
*Lecturer*

### **GRADUATE COURSES**

#### **MUS7019 Interaction Design**

In this course that I developed and convene, students gain a theoretical and practical understanding of interactivity in artistic contexts. Lectures covering topics in interaction design, sketching and prototyping, and historical trends in interactivity are supplemented with group critiques, ideation and project studios. Students develop an interactive music performance system as well as an interactive sound installation, both of which are publicly exhibited.

#### **MUS7020 Seminar in Sonic Arts**

Graduate seminar covering contemporary research topics in sonic art and music technology. I contributed to the design of the module and convene a segment on interactivity in music.

### **UNDERGRADUATE COURSES (CURRENT)**

#### **MTE2012 Interactive Sensing Systems**

This course provides technological foundations of embedded interactive sensing systems. Principles of circuits, analog electronics and microcontroller programming are first introduced and then synthesized in order to design and develop systems with dynamic behaviors. The course covers all aspects of interactive sensing systems: transduction of environmental stimuli to electrical signals; analog-to-digital conversion; signal processing in the analog and digital domains; microcontroller programming; digital communication; and auditory, visual and actuated displays.

### **MTE2007 Computer Programming for Musical Applications II**

Taught using Processing and SuperCollider, students learn fundamentals of procedural and object-oriented programming and their applications in musical contexts. Students develop FFT-based visualizations of real-time audio, algorithmic compositions and interactive software applications.

### **UNDERGRADUATE COURSES (PAST)**

#### **MTE2009 Recording Technologies & Techniques I**

In this course covering both technologies and practices of sound recording, students learned microphone and loudspeaker construction, stereo microphone techniques and audio electronics. I contributed the component on electronics, teaching signals, circuits, analog filters and operational amplifiers in classroom and lab-based sessions.

#### **MTE1005 Acoustics**

This course was co-taught with another faculty member. I contributed components on representations of sound, traveling waves, spectral analysis, and the relationships between perceptual and physical properties of sound. Students conducted creative experimental investigations of wave phenomena as well as created and analyzed collages of collected sounds in terms of their spectral properties.

#### **MTE1001 Fundamentals of Music and Sound**

This course approached music from acoustical, analytical and critical perspectives. Topics included the overtone series, sound spectrum, timbre, texture, form and harmony. Students used diverse software tools like Audacity, Garage Band and SuperCollider for creative and analytical projects.

SEPTEMBER 2006-  
JANUARY 2008     **CCRMA, STANFORD UNIVERSITY**  
*Lecturer*

#### **Music 250A Physical Interaction Design for Music (HCI Theory & Practice)**

An interdisciplinary course for advanced undergraduate, Masters and PhD students in computer music, composition, mechanical engineering, product design and computer science. Topics included microcontroller architecture and programming, sensors, inter-device communication, interaction with PureData and Max/MSP, and haptics. In interdisciplinary project teams, students designed, built and performed with a physically interactive music system.

SUMMER  
WORKSHOPS  
2002-2004, 2006-2008     **CCRMA; THE BANFF CENTRE (2004); REPUBLIC POLYTECHNIC, SINGAPORE (2007)**  
*Instructor*  
Physical Interaction Design for Music

SEPTEMBER 2001-  
JANUARY 2004     **CCRMA AND HOPKINS MARINE STATION, STANFORD UNIVERSITY**  
*Teaching Assistant*

#### **Courses**

HCI Theory and Practice  
HCI Performance Systems for Music  
Research Seminar in Computer-Generated Music  
Compositional Algorithms, Psychoacoustics, and Spatial Processing  
Psychophysics and Cognitive Psychology for Musicians  
Subtidal Communities  
Jazz History

## STUDENT RESEARCH SUPERVISION

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- QUEEN'S UNIVERSITY BELFAST**  
2008-PRESENT  
(PHD STUDENTS IN MUSIC & SONIC ARTS)
- PRIMARY SUPERVISION**  
**A. Cavan Fyans**  
*Spectator Understanding of Error in Performance* (expected December 2011)
- SECONDARY SUPERVISION**  
**Eoin Mullan**  
*Real Time Physically Informed Audio Synthesis for Computer Games* (exp. Jul. 2011)  
**Donal O'Brien**  
*Game Design and Evaluation for Senior Citizens* (exp. Dec. 2011)  
**Felipe Hickmann**  
*Territories of Secrecy: Presence and Dramaturgy in Network Music Performance* (exp. Dec. 2012)  
**Adnan Marquez-Borbon**  
*An Interaction Design Framework for the Support of Musical Skill Development* (exp. December, 2012)  
**Sebastian Heinz**  
*Integrating and Sharing Ideas with a Collaborative Performance TUI* (exp. Dec. 2012)
- QUEEN'S UNIVERSITY BELFAST**  
2008-PRESENT  
(MA IN SONIC ARTS DISSERTATIONS)
- Donal Donohoe**  
*3D Ambisonic Rendering for an Interactive Networked Environment*  
**Nicolas Villa Lopez**  
*Design and Creation of Digital Musical Instruments for Performance*  
**Carey Dodge**  
*Confidential Fern: hortus ortus specialis*  
**Chris Chong**  
*Puppet Whispers*
- QUEEN'S UNIVERSITY BELFAST**  
2008-PRESENT  
(UNDERGRADUATE PORTFOLIOS)
- Matthew Rutherford-Jones**  
*The Classroom* (Interactive Sound Installation)  
**Niall Kelly**  
*iChimes* (iPhone Application)  
**Mark McKeague**  
*Pipeworks* (Interactive Sound Installation)
- NATIONAL UNIVERSITY OF SINGAPORE (NUS)**  
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2005-2006
- Chinmay Pendharkar (Honours Thesis, Dept. of Electrical Engineering)**  
*Real-Time Interactive Parametric Mapping and Morphing*  
**Blingtones Project Team (8 Students - Master of Technology Thesis Project, Institute of Systems Science)**  
*BlingTones Interactive Ringtone Community*  
**Su Dan (Vacation Internship Program, Dept. of Electrical Engineering)**  
*Real-Time Interactive Physical Modeling Synthesis*  
**Xu Penghao (Vacation Internship Program, Dept. of Electrical Engineering)**  
*Mapping and Control Strategies for Interactive Sound Synthesis*

## VISITING, SPEAKING & TEACHING INVITATIONS

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- VISITING SCHOLAR** UNIVERSITY OF MICHIGAN (JANUARY – JULY 2011)  
School of Music, Theatre and Dance
- INVITED TALKS AND VISITING LECTURES** NATIONAL UNIVERSITY OF SINGAPORE (2010)  
Center for New Media  
*Spectatorship, Skill and Style in Electronic Music Performance*
- UNIVERSITAT POMPEU FABRA, BARCELONA, SPAIN (2010)  
Music Technology Group  
*Style and Constraint in Electronic Musical Instruments*
- NATIONAL UNIVERSITY OF SINGAPORE (2009)  
Center for New Media  
*Spectator Understanding of Error in Performance With New Technologies*
- NATIONAL CHAO TUNG UNIVERSITY, TAIWAN (2007)  
Workshop on Computer Music and Audio Technology (WOCMAT-07)  
*Physical Interaction Design for Music*
- KAINAN UNIVERSITY, TAIWAN (2007)  
Symposium for Interactive Performance Arts  
*Designing Musical Interactions*
- NATIONAL UNIVERSITY OF SINGAPORE (2005-2006)  
University Scholars Program  
Ongoing Guest Lecturer in Sonic Arts and Sciences
- STANFORD UNIVERSITY (2002-2004)  
Sophomore College  
*Digital Sound and Massive Sound Media*
- INVITED WORKSHOPS** TWEAK FESTIVAL (2008)  
University of Limerick Interaction Design Centre  
*Designing for Style*
- QUEEN'S UNIVERSITY BELFAST (2008)  
Center for Excellence in Creative and Performing Arts  
Adventures in Interdisciplinary Series  
*Designing Stylistic Interactions*
- INVITED PANELIST** UNIVERSITY OF ULSTER (2009)  
School of Art and Design  
*Workshop on Collaboration in the Arts*
- STANFORD UNIVERSITY (2002)  
Graduate School of Business  
*The Future of Content*

## RECOGNITION

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**SCHOLARSHIPS & AWARDS**    **QUEEN'S UNIVERSITY BELFAST**  
Center for Excellence in Creative and Performance Arts Grant (2009)

**STANFORD UNIVERSITY**  
School of Humanities & Sciences Fellowship (2000 – 2005)

**MCGILL UNIVERSITY**  
McConnell Scholarship (1996 – 2000)  
Dean's Honour List (1996 – 2000)  
Eric Award for Excellence in Electroacoustic Music (1998)

## PROFESSIONAL SERVICE

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**GUEST EDITOR**    *Computer Music Journal* 34:4 (Winter, 2010). HCI in Computer Music.

**PROGRAM COMMITTEE**    2010 Conference on Digital Resources in the Humanities and Arts  
2007 Conference on New Interfaces for Musical Expression (NIME)

**PEER REVIEWER (ONGOING)**    *Computer Music Journal*  
Conference on Tangible, Embedded and Embodied Computing (TEI)  
ACM Conference on Computer-Supported Collaborative Work (CSCW)  
ACM Conference on Human Factors in Computing Systems (CHI)  
Conference on New Interfaces for Musical Expression (NIME)  
International Computer Music Conference (ICMC)

**FACULTY ADVISOR**    Electronic Arts Research Student Society (2008-Present)

**DUTIES AND COMMITTEES, SCHOOL OF MUSIC & SONIC ARTS, QUB**    BSc in Music Technology Pathway Committee (2008-present, currently Assistant Convener)  
MA in Sonic Arts Pathway Committee (2008-present)  
Editor, *Music @ Queen's Concert Brochure* (2009-present)  
School Ethics Committee (2010-11)  
School Health and Safety Committee (2009-10)