

NIME 2012 Program book

12th International Conference on
New Interfaces for Musical Expression

21 May - 23 May 2011, Ann Arbor, Michigan, USA

Computer Music Journal



DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE
COMPUTER SCIENCE AND ENGINEERING



UNIVERSITY OF MICHIGAN MUSEUM OF ART



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Institutions

University of Michigan

Division of Computer Science & Engineering
College of Engineering

Department of Performance Art Technology
School of Music, Theater & Dance

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Paper chair:
Brent Gillespie

Music chair:
Michael Gurevich

Installations and Demonstration chair:
Sile O'Modhrain

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Ryan McGee
Thomas Mihalis
Akshay Nagarajan
Anastasia Nikoulina
Michael Palumbo
Andrew Piepenbrink
Diana Siwiak
Johnty Wang

All names are in
alphabetical order.

Past NIMES

NIME 2011: University of Oslo, Oslo, Norway

NIME 2010: University of Technology Sydney, Sydney, Australia

NIME 2009: Carnegie Mellon University, Pittsburgh, USA

NIME 2008: Casa Paganini, Genoa, Italy

NIME 2007: New York University, New York, USA

NIME 2006: IRCAM Centre Pompidou, Paris, France

NIME 2005: University of British Columbia, Vancouver, Canada

NIME 2004: Shizuoka University of Art and Culture, Hamamatsu, Japan

NIME 2003: McGill University, Montreal, Canada

NIME 2002: Media Lab Europe, Dublin, Ireland

NIME 2001: CHI 2001, Seattle, USA

NIME reviewers

Papers

Sarah Fdili Alaoui
Christopher Ariza
Newton Armstrong
Federico Avanzini
Kirsty Beilharz
Ross Bencina
Peter Bennett
Edgar Berdahl
Frederic Bevilacqua
Tina Blaine
Sinan Boekesoy
Niels Boettcher
Graham Booth
Nicolas Bouillot
Roberto Bresin
Nicholas Bryan
Nick Bryan-Kinns
Gaspard Bucher
Ivica Bukvic
Matthew Burtner
Andres Cabrera
Antonio Camurri
Baptiste Caramiaux
Elaine Chew
Hongchan Choi
Parag Chordia
Michael Cohen
Graham Coleman
Perry Cook
Enrico Costanza
Luke Dahl
Roger Dannenberg
Tom Davis
Nicolas d'Alessandro
Arne Eigenfeldt
Sidney Fels
Rebecca Fiebrink
Federico Fontana
Alexandre Francois
Adrian Freed
Anders Friberg
Ichiro Fujinaga
Andrew Cavan Fyans
Chris Geiger
Steven Gelineck
David Gerhard
Nick Gillian
Aristotelis Hadjakos
Rob Hamilton
Kjetil Falkenberg Hansen
Perfecto Herrera
Javier Jaimovich
Alexander Refsum Jensenius
Andrew Johnston
Sergi Jorda
Wendy Ju
Martin Kaltenbrunner

Ajay Kapur
Haruhiro Katayose
Benjamin Knapp
Mariusz Kozak
Sylvain Le Groux
Colby Leider
Michael Lyons
Esteban Maestre
Charlotte Magnusson
Thor Magnusson
Joseph Malloch
Adnan Marquez-Borbon
Mark Marshall
Luis Gustavo Martins
Eduardo Miranda
Florian Floyd Mueller
Yoichi Nagashima
Kia Ng
Charles Nichols
Per Anders Nilsson
Jieun Oh
Miguel Ortiz Perez
Gascia Ouzounian
Dan Overholt
Jyri Pakarinen
Joe Paradiso
Bryan Pardo
Philippe Pasquier
Jean-Marc Pelletier
Niels Peters
Toivianen Petri
Cornelius Poepel
Alain Renaud
Davide Rocchesso
Martin Roth
Robert Rowe
Joel Ryan
Jan Schacher
Erwin Schoonderwaldt
Diemo Schwarz
Stefania Serafin
Stephen Sinclair
Stale Skogstad
Scott Smallwood
Hugo Solis
Paul Stapleton
D. Andrew Stewart
Dan Stowell
Bob Sturm
Atau Tanaka
George Tzanetakis
Bill Verplank
Gualtiero Volpe
Graham Wakefield
Ge Wang
Nicholas Ward
Lonce Wyse
Anna Xambo
Woon Seung Yeo
Tomoko Yonezawa
Mark Zadel

Music

Jesse Allison
Newton Armstrong
Stephen David Beck
Bruce Bennett
Per Bloland
Jonas Braasch
Chris Burns
Matthew Burtner
Andres Cabrera
Alain Crevoisier
Luke Dahl
Palle Dahlstedt
Tom Davis
Scott Deal
Jason Dixon
Paul Doornbusch
Luke Dubois
Tom Erbe
Jason Freeman
Andrew Cavan Fyans
Jason Geistweidt
Tomas Henriques
Cyrille Henry
William Tsun-Yuk Hsu
Andrew Johnston
Jaroslaw Kapuscinski
Mari Kimura
Juraj Kojcs
Johnathan F. Lee
Hans Leeuw
Colby Leider
Cort Lippe
Eric Lyon
Roberto Morales
Adam Scott Neal
Charles Nichols
Miguel Ortiz Perez
Gascia Ouzounian
Tae Hong Park
Alain Renaud
Butch Rován
Steve Rush
Bruno Ruviano
Jan Schacher
Meg Schedel
Andy Schloss
Franziska Schroeder
Greg Shear
Scott Smallwood
Paul Stapleton
Hans Tammen
Jeffrey Trevino
Dan Trueman
Henry Vega
Simon Waters
Justin Yang
Michael Zbyszynski

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I

Introduction



Welcome to NIME

The desire to turn nature into instruments for making noise is as old as human civilization, and technologies have been used perennially to push the envelope outward and to create new potential for creativity, community, expression, and exchange.

We are now twelve years into an idea of a conference that nurtures this new—yet old—field under the name NIME, which stands for New Interfaces for Musical Expression. In these twelve years the conference has grown from a small workshop attached to the annual ACM CHI conference to a full-blown and vibrant conference series that year after year draws exciting new research, demonstrations, installations, and new music performances from around the globe.

This year the conference is held at the University of Michigan in Ann Arbor following international hosting locations spanning Hamamatsu, Japan to New York City to Paris, Spain. It is our distinct privilege to be able to host the conference here, and we hope that all delegates will have an outstanding academic, intellectual, creative, expressive, and musical experience and exchange. But ultimately it is not the place that makes a conference, it is the quality and intrigue of the work brought by you, the conference contributors.

This proceedings volume is a testament to the extraordinary reach, breadth and depth of work that makes up the NIME community. We count over 300 authors who have their work published in the proceedings and we are excited to have a large volume of demonstrations and concerts.

The volume of submission combined with the traditional accessible single-track oral plenary sessions means that NIME is continuing its trend of being a highly selective conference. Of 160 submissions for oral presentation, 33 were accepted—an oral presentation acceptance rate of 20%. Yet participation is central to a vibrant academic exchange. Hence we are happy to see a strong poster session. Demonstrations play a central role at NIME. The best new interfaces, instruments and insights are the ones we can get our hands on and use to perform. Hence we are proud to be able to show a large volume of live demonstrations at the conference, 59 in total to be precise, including many demos that are documented in work accepted for oral presentation. We encourage poster presenters to demonstrate their work as well, insofar as it makes sense for the presenter and the presented work. We are also displaying ten installations which will be accessible for the duration of the conference both in the conference main venue, the Michigan League, as well as in the new media center called the Duderstadt Center, also known as “the Dude”. Many of the installations help refresh the ongoing question of NIME, and that is: “what is that expressive interface” by giving us a rich range of proposals that defy the boundaries that circumscribe our expectations of what an interface should be. Last but not least we are running five concerts. Three early evening concerts at the Mendelssohn Theatre, a historical concert venue on campus. And two late night club concerts at the famous, some might say infamous, Necto club in the heart of Ann Arbor.

The music selection shows the range and depth and diversity of music evoked in and around NIMEs: a dance of clarity and confusion as to what it means to hear, see, and experience music that needs to be performed to exist, and to pave new ways of expressing what it means to be human. It is a delight to know that 41 performances could be accepted this year! All of this ultimately again goes back to you, the reviewer in the NIME community. Hundreds of members of the community took the time to review submissions to NIME and we are exceptionally grateful and pleased with the quality of reviews we received this year. Reading the papers in this volume is a testament to the careful consideration of all reviewers! Thank you!

We will have two keynote speakers who will shine their unique perspectives on what NIME means. First off we will be hearing David Wessel, Professor of Music at The University of California, Berkeley, and head of CNMAT speak. David is one of the long-standing veterans of computer music who will present on the topic of "Composing Instruments that we can Touch". Further, we will be hearing from David Huron, who is Professor of Music at The Ohio State University and a leading expert in music cognition. He will present "Sound in Action", a medley of psychological research into sound and motion. We are very excited to hear their unique perspectives and are looking forward to a lively discussion!

Additionally we have seven pre-conference workshops organized, ranging from the traditional classic NIME Primer workshop by Sid Fels and Michael Lyons to workshops on soft fabric interfaces, online machine learning for musical instruments, acoustical instrument augmentation and haptic feedback to name but a selection.

A conference of this scope would not be possible without the help and contribution of many. With much gratitude we recognize a great number of sponsors who have come out to support the conference, the fellow organizers, who have gone beyond reason to make it all happen, and the student volunteers who helped make it shine. Thank you! All this said, have a great NIME 2012 and may there be wires, interaction, music, and many exciting new ideas!

Georg Essl, Brent Gillespie, Michael Gurvech, Sile O'Modhrain & Gregory Wakefield
University of Michigan



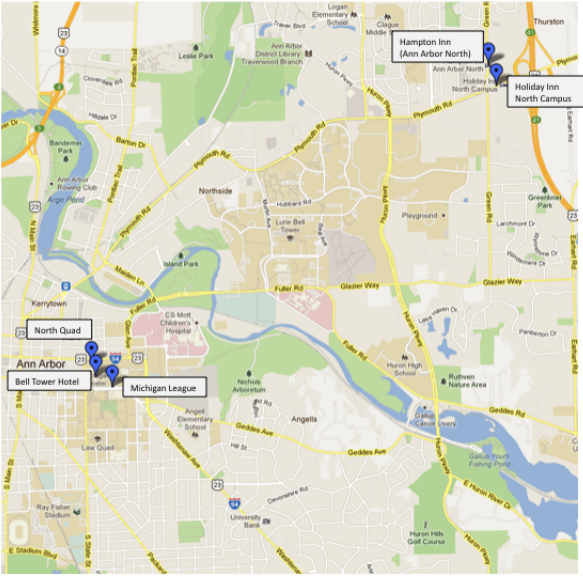


II

Practical

Venues

Overview



City of Ann Arbor with NIME venues indicated.

Michigan League

The scientific program (keynotes, presentations, posters, demos) will be held at the Michigan League, which is located at the middle of the University of Michigan Central campus.

View from the Northwest (from the Diag)



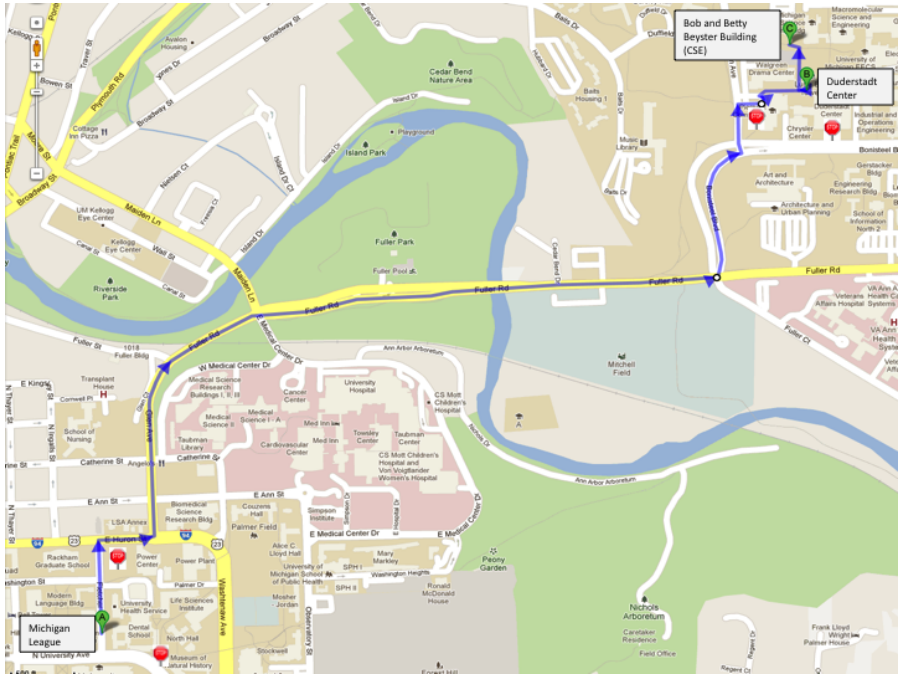
View from the south
(standing on N. University Ave)



Building name: Michigan League
Street address: 911 N. University Ave.

North Campus

Several of the tutorials on Sunday and a portion of the Installations throughout the conference will be located on North Campus, a 20-minute walk or short bus ride from the Michigan League.



Directions between the Michigan League and North Campus

Bob and Betty Beyster
Building (CSE)



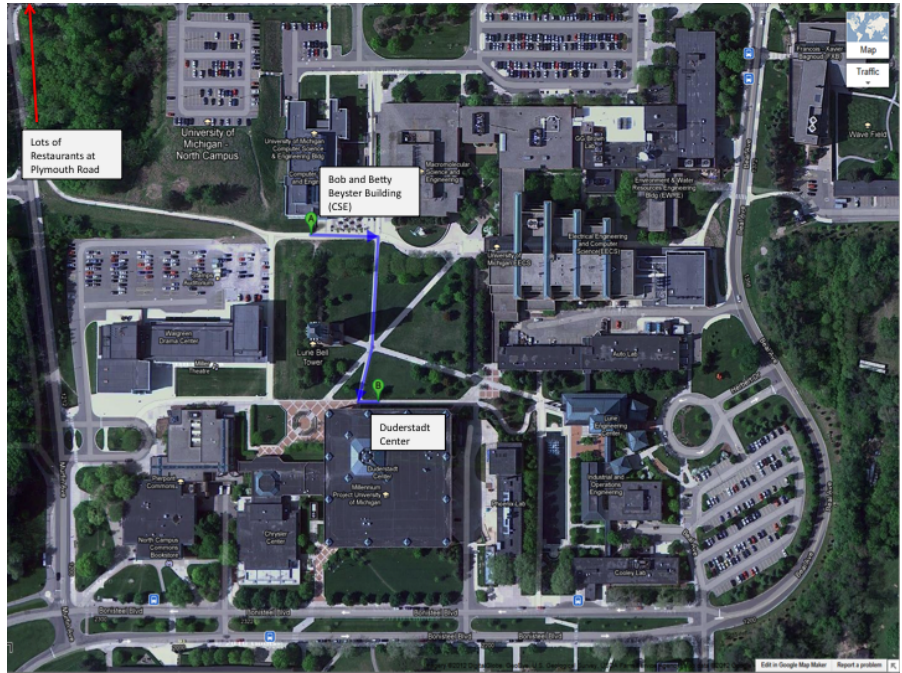
Duderstadt Center



The Duderstadt (Installations) and Beyster Building (Workshops on Sunday)

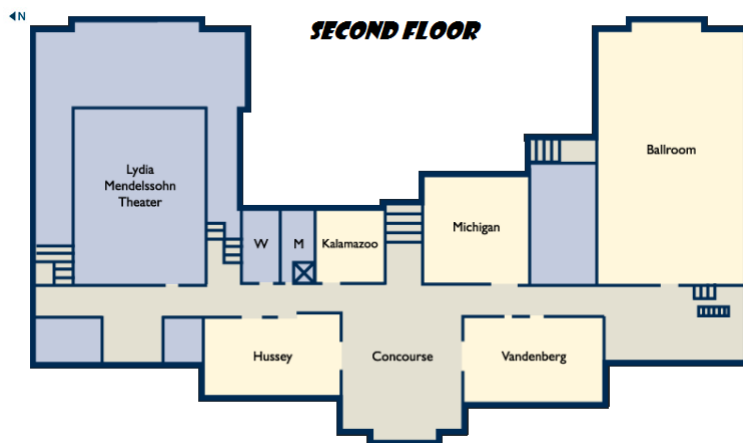
Building name: Duderstadt Center
Street address: 2281 Bonisteel Blvd.

Within North Campus

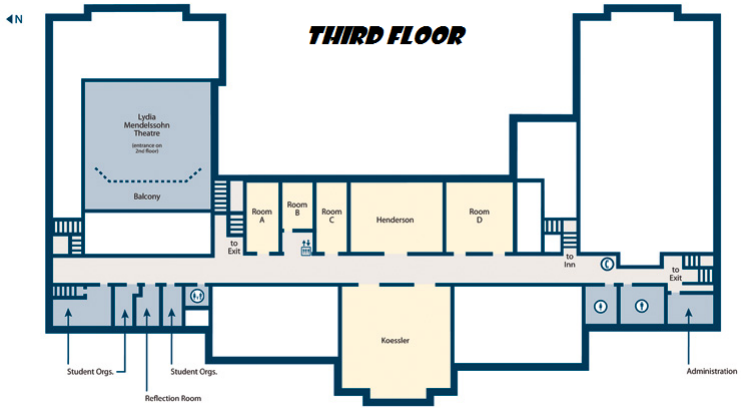


Mendelssohn Theatre

The Lydia Mendelssohn Theatre, located in the Michigan League, is the location for evening concerts. See floor plans for the Michigan League below.



See floor plans for the Michigan League below.



The Necto

Club concerts will be located at the Necto, which is a short walk from the Michigan League.



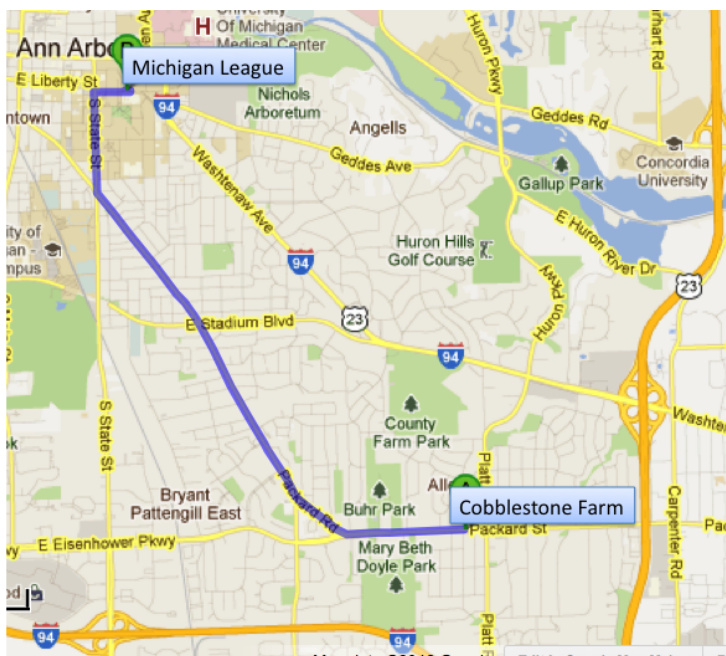
Street address: 516 East Liberty Street



Walking directions from the Michigan League to the Necto (~5 min.)

Cobblestone Farm (Banquet on Monday evening)

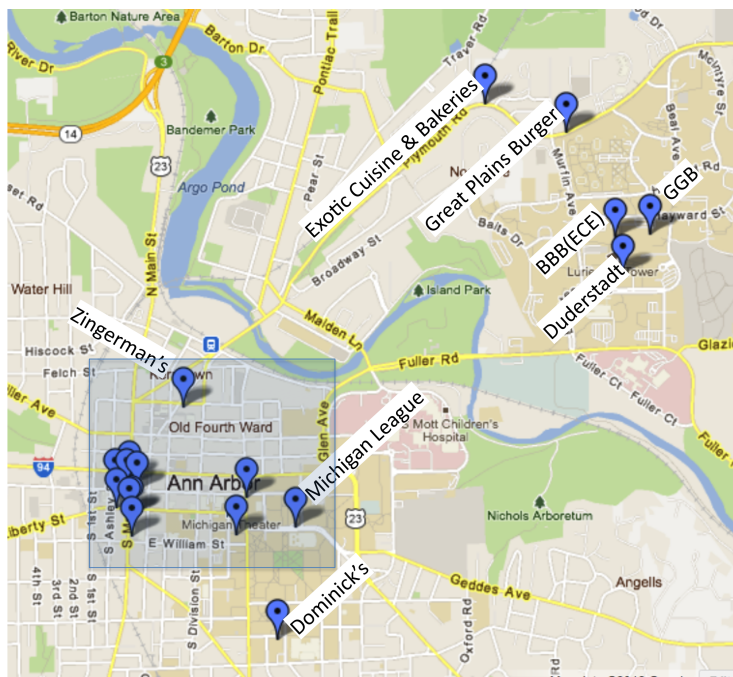
The banquet will be held at Cobblestone Farm on Monday 21 May. We will travel together on a chartered bus from The Michigan League.



Street address: 2781 Packard Road Ann Arbor

Eating

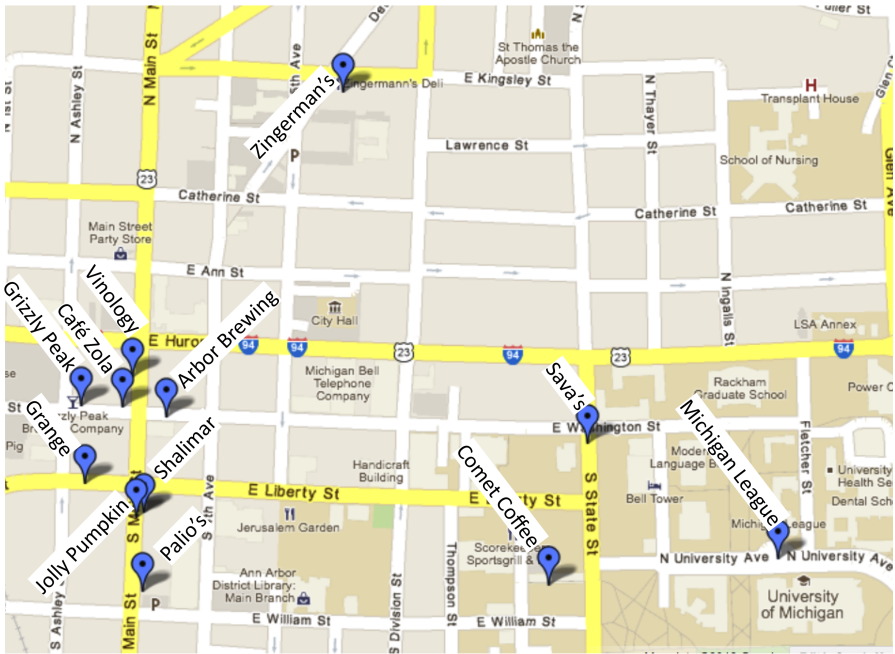
Here is a list of some recommended places to eat on and near campus. We recommend using Yelp or contacting the establishments directly for hours and further info.



Dominick's

812 Monroe St

Not a culinary groundbreaker, but an Ann Arbor institution. Half-decent Italian-American food, but people come for the large outdoor patio with big communal tables. This is where you'll find townies mingling with elbow-



patched literature profs—people who remember the ONCE Festival. All drinks (their sangria is famous) are served in mason jars of varying sizes. Order at the counter and listen for your name. They close early and alarms go off if you're still inside. Seriously. (MG)

Jolly Pumpkin

311 S Main St

Serves their own multi-award-winning Belgian-style (sour) beers brewed in nearby Dexter, and sister brewery North Peak's beer from Traverse city. This is seriously good beer in a state that's known for its beer. Also have a line of micro-distilled spirits. Gourmet pub food (rosemary-truffle fries, red chile tofu sandwich with kimchee) with some good veggie options, plus heartier seasonal mains. There's a rooftop patio upstairs at the back. (MG)

Arbor Brewing Company 114 E Washington St

Cheap happy hours and some very fine microbrews. Extensive American pub food menu with something for everyone. Some sidewalk seating. (MG)

Grange Kitchen and Bar

118 West Liberty Street

Georg's favorite dinner place. Locally-sourced, farm-to-table fine dining. Hyper-seasonal gourmet menu. Artisanal cocktails upstairs. Reservations recommended. Get the fried chick peas and get the fried Brussels sprouts. Trust me. (GE)

Palio

347 South Main

Georg's casual food suggestion. It doesn't have the image of the best Italian in town, yet I still like to go there. Their pasta dishes are great. (GE)

Grizzly Peak

120 W. Washington

Another good casual dining brew-pub option. Georg recommends their Portabella mushroom burger. Michael prefers the beer at Arbor Brewing, just down the road. You'll have to try both and report back to us. (GE, MG)

Sava's

216 South State

Modern American, i.e., eclectic and internationally inspired. Georg's lazy lunch option secret. Just a block down from the League. It's surrounded by a gazillion lunch opportunities but it's a slightly classier option. (GE)

Café Zola

112 West Washington

An especially good option for breakfast or brunch (which is 7am-4pm daily). Huge menu of crêpes, omelettes, waffles, eggs and salads. I've yet to meet anyone who's been there for dinner, but apparently they do it too. (MG)

Comet Coffee

16 Nickels Arcade

Ann Arbor's hipster pour-over coffee shop for those disinclined toward those Major Coffee Chains. 5 daily options from small roasters, complete with tasting notes. Very highly recommended. Also has espresso drinks and a few pastries. Nickels Arcade is a little pedestrian strip of shops on State just south of the corner of North University. (MG)

Great Plains Burger Company

1771 Plymouth Road

Another North Campus suggestion. Although the majority of the organizing

committee is vegetarian, we recognize some people on North Campus will want their American staples. The place does just two things: Burgers and fries. Carnivore friends vouch that it's awesome. The fries are great indeed. (GE)

Syrian Cuisine & Exotic Bakeries

1721 Plymouth Rd

If you're in the vicinity of North Campus, this counter-service joint with 6 tables in a strip mall has some of the finest Middle Eastern food around. This is not your average falafel place. We know Ex-Arborites who come back just for this! Hint: you can make a combo out of any 3 items, hot or cold. The UMich PAT department unanimously endorses the beet baba. Sadly they close at 8pm. (MG, GE)

Zingerman's Deli

422 Detroit Street

This is the one eats place in Ann Arbor that could be called famous. You'll feel like a New Yorker ordering your sandwich. You'll be yelled at, will have to push your way forward in line, and will pay the big bucks. But finally seated, you'll be oh-so-satisfied munching your thick hard-crust world-famous sandwich, knowing that you're living on top of the world (well, a pocket of the top of the world that has been transplanted to little old Ann Arbor. The German Farmer's Bread is as close as one can get to the real thing outside of Germany (BG).

Vinology

110 South Main Street

Good wines and very creative and eclectic menu to complement those wines. Half-off wine by the glass during happy hour (until 6pm). Otherwise a bit pricey, but very nice if you're looking for atmosphere (BG).

Shalimar

307 S Main Street

Excellent Indian and Pakistani food. An all-around great place with excellent look, feel, and taste. You won't be disappointed if you're hungry for some paneer dishes, some hot garlic nan or samosas! (BG)

South University

South University Avenue

Just south of central campus (and just off the bottom of the map above, paralleling North University Ave) is South University Ave, the student eats

hangout. Here you will find a plethora of casual dining options, especially for lunch. They've got Sushi, Bubble Tea, Sports Bars, Chinese, Pizza, Coffee....everything. (BG)

How to find food if you don't want to pick a recommended place:

So you do not like our picks yet want to find general areas of food options? There are a few general spots to go to and you will find many more food options that we have not described but still are variably viable to excellent.

For people who attend workshops on North Campus or are there for installations, walking north to Plymouth road leads to two adjacent mall areas which are full of restaurants. You will find Japanese, Korean, American, Syrian (recommended!), burgers, and more.

From the main conference venue the right direction to head is always west. Just a few blocks leads to State Street, which is full of mostly lunch and fast food options to service the large and hungry student population during the semester. Lots of different food types from Japanese, Chinese, Italian to middle-eastern can be found and just going this far will generally serve lunch needs quite well.

Heading a few blocks further to Main street leads to the main downtown food options. Fine dining, brew-pubs and cocktail bars are clustered around this area and literally within three blocks there are more food options that we can list. Try some of our recommendation or explore!





III

Program

Workshops

Sunday, May 20, 2012

Half-day morning workshops

A NIME Primer Workshop (Room 2725, BBB Building)
Sidney Fels and Michael Lyons

Musical Interaction Design with the CUI32Stem: Wireless Options and the GROVE system for prototyping new interfaces (Room 4941, BBB Building)
Dan Overholt

DIY Haptics for Musical Expression (X50 Lab, GGB Building)
Bill Verplank and Brent Gillespie

Half-day afternoon workshops

Building iOS apps with Max/MSP and RTcmix (Room 4901, BBB Building)
Brad Garton and Damon Holzborn

A Hands-On Workshop on Gesture Recognition and Machine Learning for Real Time Musical Interaction (Room 3725, BBB Building)
Nicholas Gillian and Rebecca Fiebrink

Full-day workshops

Actuated Acoustic Instruments (Room 3901, BBB Building)
Andrew McPherson, Edgar Berdahl, Jeff Snyder and N. Cameron Britt

Soft Circuitry and Synthesizers (Design Lab 1, Duderstadt Center)
Sarah Grant and Lara Grant

Reception

Sunday May 20, 2:00pm

Fluxus and the Essential Questions of Life

Public guided tour

University of Michigan Museum of Art
525 South State Street

UMMA offers a public guided tour on the last day of the special exhibition Fluxus and the Essential Questions of Life. The museum is open from 12pm-5pm on Sunday and admission is free. A number of other permanent and temporary exhibitions are on view. For more information, please visit <http://www.umma.umich.edu/>

Noted for blurring the boundaries between art and life, Fluxus artists such as George Maciunas, Nam June Paik, George Brecht, and Yoko Ono, among many others, challenged the notion of high art by creating unassuming, often humorous objects and performances. Their work redefined the terms of artistic production by demonstrating the idea that "anything can be art and anyone can do it" and by their disregard for traditional artistic media.

Sunday May 20, 5:00pm sharp

Motor Vehicle Sundown

live performance

Parking Lot C-2

South side of N. University St at Thayer, next to Kraus Natural Science Building

As the lights go down on UMMA's exhibition Fluxus and the Essential Questions of Life, please join us for a rare performance of Motor Vehicle Sundown, written by Fluxus artist George Brecht and dedicated to the American com-

poser John Cage. This performance by students and faculty from the University of Michigan is presented in conjunction with NIME, and in celebration of John Cage's 2012 centennial. Motor Vehicle Sundown is written for any number of motor vehicles arranged outdoors. In true Cagean fashion, 22 timed auditory and visual events and 22 pauses written on randomly shuffled instruction cards are performed on each vehicle.

This program is co-sponsored by the UM School of Music, Theatre, and Dance, the UM College of Engineering and UMMA. Fluxus and the Essential Questions of Life was organized by the Hood Museum of Art and was generously supported by Constance and Walter Burke, Dartmouth College Class of 1944, the Marie-Louise and Samuel R. Rosenthal Fund, and the Ray Winfield Smith 1918 Fund. UMMA's installation is made possible in part by the University of Michigan Health System, the University of Michigan Office of the Provost, Arts at Michigan, and the CEW Frances and Sydney Lewis Visiting Leaders Fund.

Sunday May 20, 5:30-7:30pm

NIME 2012 Opening Reception

University of Michigan Museum of Art
525 South State Street

Immediately following the performance of Motor Vehicle Sundown, you are invited to join us at UMMA for an opening reception featuring interactive media works by Performing Arts Technology students at the University of Michigan. Drinks and light hors d'oeuvres will be served. You will need to present your conference badge for admission.

Keynotes

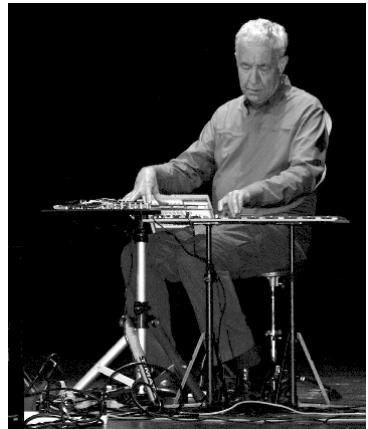
David Wessel (Monday)

Composing Instruments that we Touch

The Center for New Music and Audio Technologies, (CNMAT)
Department of Music
University of California Berkeley

A number of issues in the design of and performance on touch-based interfaces are presented. These include the role of multi-touch pressure sensing and the performance techniques that it affords, an update on Open Sound Control (OSC), and the use of perceptual spaces for low-dimensional control of high dimensional processes. Emphasis will be given to musical control gestures as shapes rather than mere triggers and to the importance of dynamics and the forceful expression of intentions. The notion of *mise en place* borrowed from cuisine is developed as a methodology for the preparation and testing of performance hardware and software.

David Wessel From his high school years onwards his musical activities were central to his life and after his PhD in Psychology he committed himself to blending his science and technology skills with his musical interests. In 1976, at the invitation of Pierre Boulez, he moved to Paris to work as a researcher at the then nascent Institut de Recherche et Coordination Acoustique/Musique IRCAM where he remained until 1988. For his work at IRCAM he was recognized as Chevalier dans l'Ordre des Arts et des Lettres by the French Minister of Culture. In 1988, he arrived at UC Berkeley as Professor of Music with the charge of building the interdisciplinary Center for New Music and Audio Technologies (CNMAT). He organized CNMAT as a lab-



oratory wherein both science and technology people interact on daily basis with musicians. Wessel insists on an instrumental conception—the computer as musical instrument equipped with gesture sensing devices and sound diffusion systems.

David Huron (Wednesday)

Sound in Action

Department of Music
The Ohio State University

A medley of psychological research related to sound and movement – including gesture, dance, and facial expression. Special attention will be given to ethological principles of signals and cues.



David Huron is Arts and Humanities Distinguished Professor at the Ohio State University. At different times in his career Dr. Huron has been a Professor of Music, an Associate Professor of Psychology, and an Adjunct Professor of Engineering. Originally from Canada, Huron received a Ph.D. in musicology in 1989 from the University of Nottingham (England). In addition to laboratory-based research, Huron’s activities also involve field studies on music and globalization in Micronesia.

Dr. Huron has held a number of visiting appointments, including the Ernest Bloch Lecturer at the University of California, Berkeley, the Astor Lecturer at Oxford, and the Donald Wort Lecturer at Cambridge. He has produced over 100 scholarly publications, and delivered more than 300 lectures in 16 countries spanning five continents. His book “Sweet Anticipation: Music and the Psychology of Expectation” has been identified by The Taruskin Challenge as one of 15 “must read” books in the field of musicology.

Program

First Day: Monday May 21, 2012

9:00-9:15

Opening Remarks

Georg Essl, Jason Corey

9:15-10:30

Keynote 1: David Wessel

Composing Instruments that we can Touch

10:30-11:00

Coffee Break

11:00-12:30

Paper Session I – Actuation and Visualization (Ballroom)

11:00-11:25

Pencil Fields: An Expressive Low-Tech Performance Interface for Analog Synthesis

Palle Dahlstedt

11:25-11:45

Left and right-hand guitar playing techniques detection

Loïc Reboursière, Otso Lähdeoja, Thomas Drugman, Stéphane Dupont, Cécile Picard-Limpens, Nicolas Riche

11:45-12:10

Temporal Control In the EyeHarp Gaze-Controlled Musical Interface

Zacharias Vamvakousis, Rafael Ramirez

12:10-12:30

Investigation of Gesture Controlled Articulatory Vocal Synthesizer using a Bio-Mechanical Mapping Layer

Johnty Wang, Nicolas d’Alessandro, Sidney Fels, Robert Pritchard

12:30-1:30

Lunch Break

1:30-2:30

Poster Session I (Koessler)

Towards Speeding Audio EQ Interface Building with Transfer Learning

Bryan Pardo, David Little, Darren Gergle

Better Drumming Through Calibration: Techniques for Pre-Performance Robotic Percussion Optimization

Jim Murphy, Ajay Kapur, Dale Carnegie

An Interface for Emotional Expression in Audio-Visuals

Kamer Ali Yuksel, Sinan Buyukbas, Elif Ayiter

Play-A-Grill: Music to Your Teeth

Aisen Caro Chacin

Interactive Mobile Music Performance with Digital Compass

Bongjun Kim, Woon Seung Yeo

Multiple Pianolas in Antheil's Ballet mécanique

Paul D. Lehrman

A Component-Based Approach for Modeling Plucked-Guitar Excitation Signals

Raymond V. Migneco, Youngmoo E. Kim

Graphic Score Grammars for End-Users

Alistair G. Stead, Alan F. Blackwell, Samuel Aaron

Mapping to musical actions in the FILTER system

Doug Van Nort, Jonas Braasch, Pauline Oliveros

Musician Assistance and Score Distribution (MASD)

Nathan Magnus, David Gerhard

A Design Approach to Engage with Audience with Wearable Musical Instruments: Sound Gloves

Chi-Hsia Lai, Koray Tahiroglu

A New Keyboard-Based, Sensor-Augmented Instrument for Live Performance

Red Wierenga

Virtual Pottery: An Interactive Audio-Visual Installation

Yoon Chung Han, Byeong-jun Han

A Survey and Thematic Analysis Approach as Input to the Design of Mobile Music GUIs

Atau Tanaka, Adam Parkinson, Zack Settel, Koray Tahiroglu

Ecological considerations for participatory design of DMIs

A. Cavan Fyans, Adnan Marquez-Borbon, Paul Stapleton, Michael Gurevich

Sensor Based Measurements of Musicians' Synchronization Issues

T. Grosshauser, V. Candia, H. Hildebrandt, G. Tröster

Gest-O: Performer Gestures Used to Expand the Sounds of the Saxophone

John Melo, Daniel Gómez, Miguel Vargas

The Human Skin as an Interface for Musical Expression

Alexander Müller-Rakow, Jochen Fuchs

Making Sound Synthesis Accessible to Children

Christoph Trappe

Developing the Dance Jockey System for Musical Interaction with the Xsens MVN Suit

Ståle A. Skogstad, Kristian Nymoén, Yago de Quay, Alexander Refsum Jensenius

Introducing CrossMapper: Another Tool for Mapping Musical Control Parameters

Liam O'Sullivan, Dermot Furlong, Frank Boland

1:30-2:30

Posters & Demos (Room B)

Music for Flesh II: informing interactive music performance with the viscerality of the body system

Marco Donnarumma

1:30-2:30

Demos (Room C)

Simpletones: A System of Collaborative Physical Controllers for Novices

Francisco Zamorano

1:30-2:30

Demos (Henderson)

Sonik Spring

Tomás Henriques

DrumTop: Playing with Everyday Objects

Akito van Troyer

The EMvibe: An Electromagnetically Actuated Vibraphone

N. Cameron Britt, Jeff Snyder, Andrew McPherson

The 'interactive Music Awareness Program' (IMAP) for Cochlear Implant Users

Benjamin R. Oliver, Rachel M. van Besouw, David R. Nicholls

SenSynth: a Mobile Application for Dynamic Sensor to Sound Mapping

Ryan McGee, Daniel Ashbrook, Sean White

The Electrumpet, Additions and Revisions

Hans Leeuw

Borderlands: An Audiovisual Interface for Granular Synthesis

Chris Carlson, Ge Wang

1:30-2:30

Posters & Demos (Room D)

MuDI - Multimedia Digital Instrument for Composing and Performing Digital Music for Films in Real-time

Pedro Patrício

The body as mediator of music in the Emotion Light

Adinda van 't Klooster

Studying Aesthetics of Interaction in a Musical Interface Design Process Through 'Aesthetic Experience Prism'

Matti Luhtala, Markku Turunen, Ilkka Niemeläinen, Johan Plomp

Sinkapater - An Untethered Beat Sequencer

Jiffer Harriman

LoopJam: turning the dance floor into a collaborative instrumental map

Christian Frisson, Stéphane Dupont, Julien Leroy, Alexis Moinet, Thierry Ravet, Xavier Siebert, Thierry Dutoit

PocoPoco: A Kinetic Musical Interface With Electro-Magnetic Levitation Units

Yuya Kikukawa, Takaharu Kanai, Tatsuhiko Suzuki, Toshiki Yoshiike, Tetsuaki Baba, Kumiko Kushiyama

 1:30-2:30

Posters & Demos (Michigan)

Augmented Piano Performance using a Depth Camera

Qi Yang, Georg Essl

TC-11: A Programmable Multi-Touch Synthesizer for the iPad

Kevin Schlei

Pencil Fields: An Expressive Low-Tech Performance Interface for Analog Synthesis

Palle Dahlstedt

The Planetarium as a Musical Instrument

Dale E. Parson, Phillip A. Reed

The JD-1: an Implementation of a Hybrid Keyboard/Sequencer Controller for Analog Synthesizers

Jeff Snyder, Andrew McPherson

Musical Interaction Design with the CUI32Stem: Wireless Options and the GROVE system for prototyping new interfaces

Dan Overholt

The Music Ball Project: Concept, Design, Development, Performance

Alexander Refsum Jensenius, Arve Voldsund

Many-Person Instruments for Computer Music Performance

Michael Rotondo, Nick Kruge, Ge Wang

Kritaanjali: A Robotic Harmonium for Performance, Pedagogy and Research

Ajay Kapur, Jim Murphy, Dale Carnegie

 2:30-3:30

Paper Session II – Augmented Instruments I (Ballroom)

2:30-2:50

Further Developments in the Electromagnetically Sustained Rhodes Piano

Greg Shear, Matthew Wright

- 4:40-5:00 A Qualitative Evaluation of Augmented Human-Human Interaction in Mobile Group Improvisation
Roberto Pugliese, Koray Tahiroglu, Callum Goddard, James Nesfield
- 3:10-3:30 The EMvibe: An Electromagnetically Actuated Vibraphone
N. Cameron Britt, Jeff Snyder, Andrew McPherson

3:30-4:00 Coffee Break

4:00-5:00 Paper Session III – Gesture (Ballroom)

- 4:00-4:20 Musical Interaction with Hand Posture and Orientation: A Toolbox of Gestural Control Mechanisms
Thomas Mitchell, Sebastian Madgwick, Imogen Heap
- 4:20-4:40 Digito: A Fine-Grain Gesturally Controlled Virtual Musical Instrument
Nicholas Gillian, Joseph A. Paradiso
- 4:40-5:00 VOICON: An Interactive Gestural Microphone For Vocal Performance
Yongki Park, Hoon Heo, Kyogu Lee

5:30-8:30 Banquet (Cobblestone Farm)

9:00-10:30 Evening Concert (Lydia Mendelssohn Theatre)

- Floating Pionts II
Matthias Schneiderbanger, Michael Vierling
- Water Birds
Maria Helmuth, Rebecca Danard
- 4 Hands iPhone
Atau Tanaka, Adam Parkinson
- Aphasia
Mark Applebaum

Violent Dreams
Hans Leeuw, Diemo Schwarz

the ellipsis catalog
Kevin Patton, Butch Rovon

Clarinet (Albino Butterfly)
Martin Marier

11:00

Overnight Concert (North Quad Space 2435)

Music for Sleeping & Waking Minds
*Gascia Ouzounian, R. Benjamin Knapp, Eric Lyon, R. Luke
DuBois*

Second Day: Tuesday May 22nd 2012

9:00-10:30	Paper Session IV (Tabletop/Multitouch/Laptop)
9:00-9:25	Towards fast multi-point force and hit detection in table-tops using mechanically intercoupled Force Sensing Resistors <i>Mathieu Bosi, Sergi Jordà</i>
9:25-9:45	TouchKeys: Capacitive Multi-Touch Sensing on a Physical Keyboard <i>Andrew McPherson</i>
9:45-10:05	Wicked Problems and Design Considerations in Composing for Laptop Orchestra <i>Luke Dahl</i>
10:05-10:30	Collaborative Composition and Socially Constructed Instruments: Ensemble Laptop Performance Through the Lens of Ethnography <i>Graham Booth, Michael Gurevich</i>
10:30-11:00	Coffee Break
11:00-12:30	Paper Session V (Machine Learning)
11:00-11:20	Unsupervised Play: Machine Learning Toolkit for Max <i>Benjamin D. Smith, Guy E. Garnett</i>
11:20-11:45	Exploring Reinforcement Learning for Mobile Percussive Collaboration <i>Nate Derbinsky, Georg Essl</i>
11:45-12:05	Liveness and Flow in Notation Use <i>Chris Nash, Alan Blackwell</i>
12:05-12:30	Movement to Emotions to Music: Using Whole Body Emotional Expression as an Interaction for Electronic Music Generation <i>Alexis Clay, Nadine Couture, Elodie Decarsin, Myriam Desainte-Catherine, Pierre-Henri Vulliard, Joseph Larralde</i>

12:30-1:30 **Lunch Break**

1:30-2:30 **Posters Session II (Henderson)**

The 'Interface' in Site-Specific Sound Installation
Kirsty Beilharz, Aengus Martin

Non-invasive sensing and gesture control for pitched percussion hyper-instruments using the Kinect
Shawn Trail, Michael Dean, Gabrielle Odowichuk, Tiago Fernandes Tavares, Peter Driessen, W. Andrew Schloss, George Tzanetakis

Real-time Modification of Music with Dancer's Respiration Pattern
Jeong-seob Lee, Woon Seung Yeo

Performing experimental music by physical simulation
Julien Castet

Wireless Interactive Sensor Platform for Real-Time Audio-Visual Experience
Jia-Liang Lu, Da-Lei Fang, Yi Qin, Jiu-Qiang Tang

The Gesturally Extended Piano
William Brent

Electric Slide Organistrum
Martin Piñeyro

NIME Education at the HKU, Emphasizing performance
Hans Leeuw, Jorrit Tamminga

1:30-2:30 **Posters & Demos (Michigan)**

Granular Learning Objects for Instrument Design and Collaborative Performance in K-12 Education
Ivica Bukvic, Liesl Baum, Bennett Layman, Kendall Woodard

SABRe: The Augmented Bass Clarinet
Sébastien Schiesser, Jan C. Schacher

Bubble Drum-agog-ing: Polyrhythm Games & Other Inter Activities

Jay Alan Jackson

DIRTI - Dirty Tangible Interfaces

Matthieu Savary, Diemo Schwarz, Denis Pellerin

Direct and surrogate sensing for the Gyl african xylophone

Shawn Trail, Tiago Fernandes Tavares, Dan Godlovitch, George Tzanetakis

Temporal Control In the EyeHarp Gaze-Controlled Musical Interface

Zacharias Vamvakousis, Rafael Ramirez

1:30-2:30

Poster & Demo (Room B)

Tweet Harp: Laser Harp Generating Voice and Text of Real-time Tweets in Twitter

Ayaka Endo, Takuma Moriyama, Yasuo Kuhara

1:30-2:30

Posters & Demos (Room C)

MAGE – A Platform for Tangible Speech Synthesis

Maria Astrinaki, Nicolas d’Alessandro, Thierry Dutoit

Investigation of Gesture Controlled Articulatory Vocal Synthesizer using a Bio-Mechanical Mapping Layer

Johnty Wang, Nicolas d’Alessandro, Sidney Fels, Robert Pritchard

A Digital Mobile Choir: Joining Two Interfaces towards Composing and Performing Collaborative Mobile Music

Nicolas d’Alessandro, Aura Pon, Johnnty Wang, David Eagle, Ehud Sharlin, Sidney Fels

1:30-2:30

Posters & Demos (Room D)

SoundStrand: Composing with a Tangible Interface for Composing Music with Limited Degrees of Freedom

Eyal Shahar

Approaches to Collaboration in a Digital Music Ensemble

Ian Hattwick, Kojiro Umezaki

The Sound Space as Musical Instrument: Playing Corpus-Based Concatenative Synthesis

Diemo Schwarz

2:30-3:30	Paper Session VI (Mobile)
2:30-2:50	Comparing Motion Data from an iPod Touch to an Optical Infrared Marker-Based Motion Capture System <i>Kristian Nymoen, Arve Voldsund, Ståle A. Skogstad, Alexander Refsum Jensenius, Jim Torresen</i>
2:50-3:10	massMobile - an Audience Participation Framework <i>Nathan Weitzner, Jason Freeman, Stephen Garrett, Yan-Ling Chen</i>
3:10-3:30	AuRal: A Mobile Interactive System for Geo-Locative Audio Synthesis <i>Jesse Allison, Christian Dell</i>

3:30-4:00	Coffee Break
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4:00-5:00	Installation Time
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5:00-7:00	Dinner Break
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7:00-8:30	Evening Concert (Lydia Mendelssohn Theatre)
	Of Dust and Sand <i>Per Bloland</i>
	Jack Walk <i>Scott Deal</i>
	Desamor I <i>Roberto Morales-Manzanares</i>
	Flue <i>Bill Hsu</i>

Rachmaninoff-Wilson Medley

Jonathan Golove, Magnus Martensson

Thought.Projection

Robert Alexander, David Biedenbender, Anton Pugh, Suby Raman, Amanda Sari Perez, Sam L. Richards

Eigenspace

Mari Kimura, Tomoyuki Kato

Where Are You Standing?

Bongjun Kim, Woon Seung Yeo

9:00-10:30

Late Night Concert (Necto)

Pencil Fields

Palle Dahlstedt

Munich Eunuch

Daniel Brophy, Colin Labadie

Thunderclap For Six Kinetic Light Drums

Jenn Figg, Matthew McCormack, Paul Cox

InHands: Improvisation for Mobile Phones

Koray Tahiroğlu

Modified Attack

Levy Lorenzo

Music for Flesh II, interactive music for enhanced body

Marco Donnarumma

Third Day: Wednesday May 23rd 2012

9:00-10:30	Paper Session VII (Augmented Instruments II)
9:00-9:20	Extracting Human Expression For Interactive Composition with the Augmented Violin <i>Mari Kimura, Nicolas Rasamimanana, Frédéric Bevilacqua</i>
9:20-9:45	A Quantitative Comparison of Position Trackers for the Development of a Touch-less Musical Interface <i>Gabriel Vigliensoni, Marcelo M. Wanderley</i>
9:45-10:05	SABRe: The Augmented Bass Clarinet <i>Sébastien Schiesser, Jan C. Schacher</i>
10:30-11:00	Coffee Break
11:00-12:15	Keynote 2: David Huron <i>Sound in Action</i>
11:00-12:15	Keynote II: David Huron
12:15-1:30	Lunch Break
1:30-2:30	Poster Session III (Koessler)
	Real-Time Music Notation, Collaborative Improvisation, and Laptop Ensembles <i>Sang Won Lee, Jason Freeman, Andrew Collela</i>
	Drum Stroke Computing: Multimodal Signal Processing for Drum Stroke Identification and Performance Metrics <i>Jordan Hochenbaum, Ajay Kapur</i>
	A Comparative User Study of Two Methods of Control on a Multi-Touch Surface for Musical Expression <i>Blake Johnston, Owen Vallis, Ajay Kapur</i>

Tok! : A Collaborative Acoustic Instrument using Mobile Phones

Sang Won Lee, Ajay Srinivasamurthy, Gregoire Tronel, Weibin Shen, Jason Freeman

A Reactive Environment for Dynamic Volume Control

Dalia El-Shimy, Thomas Hermann, Jeremy Cooperstock

Palm-area sensitivity to vibrotactile stimuli above 1 kHz

Lonce Wyse, Suranga Nanayakkara, Paul Seekings, Sim Heng Ong, Elizabeth Taylor

Network spaces as collaborative instruments: WLAN trilateration for musical echolocation in sound art

Stelios Manousakis

Strategies for Engagement in Computer-Mediated Musical Performance

James Nesfield

EnActor: A Blueprint for a Whole Body Interaction Design Software Platform

Vangelis Lympouridis

Considering Audience's View Towards an Evaluation Methodology for Digital Musical Instruments

Jerônimo Barbosa, Filipe Calegario, Verônica Teichrieb, Geber Ramalho, Patrick McGlynn

Development and Evaluation of a ZigFlea-based Wireless Transceiver Board for CUI32

Jim Torresen, Øyvind N. Hauback, Dan Overholt, Alexander Refsum Jensenius

Perfect Take: Experience design and new interfaces for musical expression

Nicolas Makelberge, Álvaro Barbosa, André Perrotta, Luís Sarmiento Ferreira

A Customizable Sensate Surface for Music Control

Nan-Wei Gong, Nan Zhao, Joseph A. Paradiso

LOLbot: Machine Musicianship in Laptop Ensembles

Sidharth Subramanian, Jason Freeman, Scott McCoid

Kugelschwung - a Pendulum-based Musical Instrument

Jamie Henson, Benjamin Collins, Alexander Giles, Kathryn Webb, Matthew Livingston, Thomas Mortensson

A Dimension Space for Evaluating Collaborative Musical Performance Systems

Ian Hattwick, Marcelo Wanderley

Using a seeing/blindfolded paradigm to study audience experiences of live-electronic performances with voice

Andreas Bergsland, Tone Åse

Exploring audio and tactile qualities of instrumentality with bowed string simulations

Olivier Tache, Stephen Sinclair, Jean-Loup Florens, Marcelo Wanderley

Optoelectronic Acquisition and Control Board for Musical Applications

Aorum Hollinger, Marcelo M. Wanderley

Bowing a vibration-enhanced force feedback device

Marcello Giordano, Stephen Sinclair, Marcelo M. Wanderley

DIY Hybrid Analog/Digital Modular Synthesis

Greg Surges

Patchwork: Multi-User Network Control of a Massive Modular Synthesizer

Brian Mayton, Gershon Dublon, Nicholas Joliat, Joseph A. Paradiso

1:30-2:30

Demo (Room B)

The Emotion in Motion Experiment: Using an Interactive Installation as a Means for Understanding Emotional Response to Music

Javier Jaimovich, Miguel Ortiz, Niall Coghlan, R. Benjamin Knapp

1:30-2:30

Poster & Demo (Room C)

Recontextualizing the Multi-touch Surface

Patrick McGlynn, Victor Lazzarini, Gordon Delap, Xiaoyu Chen

1:30-2:30

Posters & Demos (Henderson)

Unsupervised Play: Machine Learning Toolkit for Max
Benjamin D. Smith, Guy E. Garnett

TedStick: a Tangible Electrophonic Drumstick
Cory Levinson

Two Shared Rapid Turn Taking Sound Interfaces for Novices
Anne-Marie Skriver Hansen, Hans Jørgen Andersen, Pirkko Raudaskoski

Mobile Controls On-The-Fly: An Abstraction for Distributed NIMES
Charles Roberts, Graham Wakefield, Matthew Wright

A Voice Interface for Sound Generators: Adaptive and Automatic Mapping of Gestures to Sound
Stefano Fasciani, Lonce Wyse

The Dual-Analog Gamepad as a Practical Platform for Live Electronics Instrument and Interface Design
Christopher Ariza

FutureGrab: A wearable synthesizer using vowel formants
Yoonchang Han, Jinsoo Na, Kyogu Lee

1:30-2:30

Posters & Demos (Room D)

Musician Maker: Play Expressive Music without Practice
John Buschert

Designing for Cumulative Interactivity: The derivations System
Benjamin Carey

Crossole: A Gestural Interface for Composition, Improvisation and Performance using Kinect
Sertan Sentürk, Sang Won Lee, Avinash Sastry, Anosh Daruwalla, Gil Weinberg

From the Eyes to the Ears
Zacharias Vamvakousis

Kinetic Light Drums / Community Beacons
Matthew McCormack, Jenn Figg

1:30-2:30

Posters & Demos (Michigan)

Designing Mappings for Musical Interfaces Using Preset Interpolation

Martin Marier

TouchKeys: Capacitive Multi-Touch Sensing on a Physical Keyboard

Andrew McPherson

Concept Tahoe: Microphone Midi Control

Dan Moses Schlessinger

The Deckle Project : A Sketch of Three Sensors

Hongchan Choi, John Granzow, Joel Sadler

Instant Instrument Anywhere: A Self-Contained Capacitive Synthesizer

David B. Gerhard, Brett Park

Digito: A Fine-Grain Gesturally Controlled Virtual Musical Instrument

Nicholas Gillian, Joseph A. Paradiso

Node and Message Management with the JunctionBox Interaction Toolkit

Lawrence Fyfe, Adam Tindale, Sheelagh Carpendale

AuRal: A Mobile Interactive System for Geo-Locative Audio Synthesis

Jesse Allison, Christian Dell

Empathetic Interactive Music Video Experience

Myunghye Lee, Youngsun Kim, Gerard Jounghyun Kim

The Fingerphone: a Case Study of Sustainable Instrument Redesign

Adrian Freed

2:30-3:30

Paper Session VIII (Hardware platforms & toolkits)

2:30-2:50

Musical Interaction Design with the CUI32Stem: Wireless Options and the GROVE system for prototyping new interfaces

Dan Overholt

2:50-3:10

The JD-1: an Implementation of a Hybrid Keyboard/Sequencer Controller for Analog Synthesizers

Jeff Snyder, Andrew McPherson

3:10-3:30 To be inside someone else's dream: On Music for Sleeping & Waking Minds
Gascia Ouzounian, R. Benjamin Knapp, Eric Lyon, R. Luke DuBois

3:30-4:00 Coffee Break

4:00-5:00 Paper Session IX (Augmented Instruments III)

4:00-4:20 Techniques and Circuits for Electromagnetic Instrument Actuation
Andrew McPherson

4:20-4:40 OMaxist Dialectics: Capturing, Visualizing and Expanding Improvisations
Benjamin Lévy, Georges Bloch, Gérard Assayag

2:50-3:10 An Electronic Bagpipe Chanter for Automatic Recognition of Highland Piping Ornamentation
Duncan W. H. Menzies, Andrew McPherson

7:00-8:30 Evening Concert (Lydia Mendelssohn Theatre)

Motion-Influenced Composition
Eli Stine

Fragments
Thomas Ciuffo

Fragmentation
Alberto Novello

Måne Havn (mounhoun): An Exploration of Gestural Language for Pitched Percussion
Shawn Trail, Thor Kell, Gabrielle Odowichuk

Texturologie 12: Gesture Studies
James Caldwell

Mimi: Multi-modal Interaction for Musical Improvisation
Isaac Schankler, Alexandre François, Elaine Chew

Ambiguous Devices
Paul Stapleton, Tom Davis

9:00-11:00

Late Night Concert (Necto)

The Theremin Orchestra

Mercedes Blasco

Stelaextraction

Alexander Dupuis

Fieldwork

Christopher Burns

four fragments—A Performance for Swarming Robotics

*Yuta Uozumi, Keisuke Oyama, Jun Tomioka, Hiromi Okamoto,
Takayuki Kimura*

Sandbox#3.6


Pierre Alexandre Tremblay

DaisyLab, a Phonetic Deconstruction of Humankind

Nicolas d'Alessandro, Diemo Schwarz



TO OFF SPRING
PUNK
NOT
A P X I D

A woman with long dark hair, wearing a green jacket over a red shirt and green pants, is walking from left to right in a brightly lit room. She is holding a small object in her hands. In the background, there is a large, corrugated metal door with graffiti on it. The graffiti includes the words "LOD OF PRING PANK" and "XIXA". The room has a tiled floor and a ceiling with recessed lighting.

IV Concerts

Monday May 21, 9:00pm

Lydia Mendelssohn Theatre

Floating Points II

Matthias Schneiderbanger (Chirotron), Michael Vierling (Sensor-table)

The piece *Floating Points II* is the result of the continued work of the instrument makers and performers Michael Vierling and Matthias Schneiderbanger within their self-developed system for collaborative performance including the digital musical instruments Sensor-table and Chirotron. These instruments use several sensors to transform the movements and gestures of their players into data for sound generation, placement and movement of the sound in the room. The performances with *Sensor-table* and *Chirotron* emphasize the connection between the performer and the digital musical instruments by using the basic noise of the sensors as a notable characteristic in the sound synthesis to accentuate the technical boundaries in an aesthetic way. The network is the core of the common setup: It offers the ability to connect two physically separated instruments into one common signal chain for sound processing and spatialisation.



Water Birds

Mara Helmuth and Rebecca Danard

Rebecca Danard (Bb Clarinet, bass clarinet), Mara Helmuth (Computer)

Water Birds is an interactive and collaborative composition for clarinet, bass clarinet and computer. The sound of the clarinets is processed live by spectral delays with MaxMSP and rtmix . Space structures the composition, as the particular sound parameters initiated depend on the performer's location on the stage. The development of the current version of the piece involved a custom wireless infrared sensor network, which responds to the clarinetist's movements. Currently the piece is performed without the sensor network, but the strategy of that configuration still drives the composition. A score containing five sound-generating ideas, consisting of musical fragments and a Zen poem, allows the performer to improvise, creating his/her own sound

pathway through the piece. The pathway is reminiscent of the path of birds in the Zen poem, Dogen's *On the Nondependence of Mind*, which reads: "Water birds/going and coming/their traces disappear/but they never/forget their path."

4 Hands iPhone

Atau Tanaka and Adam Parkinson

Adam & Atau exploit a commonly available consumer electronics device, a smartphone, as an expressive, gestural musical instrument. The device is well known an iconic object of desire in our society of consumption, playing music as a fixed commodity. The performers re-appropriate the mobile phone and transform the consumer object into an instrument for concert performance. As a duo, with one in each hand, they create a chamber music, 4-hands iPhone. The accelerometers allow high precision capture of the performer's free space gestures. This drives a granular synthesis patch in Pure Data (PD), where one patch becomes the process by which a range of sounds from the natural world are stretched, frozen, scattered, and restitched. The fact that all system components—sensor input, signal processing and sound synthesis, and audio output, are embodied in a single device make it a self-contained, expressive musical instrument.

Aphasia

Mark Applebaum

Aphasia (2010), for solo performer and two-channel tape, was commissioned by the GRM, Paris and composed for virtuoso singer Nicholas Isherwood. The tape, an idiosyncratic explosion of warped and mangled sounds, is made up exclusively of vocal samples—all provided by Isherwood and subsequently transformed digitally. Against the backdrop of this audio narrative, an elaborate set of hand gestures are performed—an assiduously choreographed sign language of sorts. Each gesture is fastidiously synchronized to the tape in tight rhythmic coordination.

In the context of NIME, the piece is noteworthy for its deliberate—if unintentionally political—contemporary technology abstinence. Ancillary questions arise, such as "What are the present limits of gesture control?"; "Do these limitations present unwelcome pressures on the boundaries of artistic imagination and creative capacity?"; and "How do we learn to recognize when it is artistically prudent to eschew emerging tools?"

Violent Dreams

Hans Leeuw (Electrumpet), Diemo Schwarz (CataRT, gestural controllers)

Two typical NIME related inventions meet in this performance. IR-CAM based Diemo Schwarz and HKU lecturer and Electrumpet player Hans Leeuw met at STEIM in 2010. The extreme sound possibilities of the sensor driven Electrumpet combine wonderfully with the corpus based techniques in CataRT. Both Diemo and Hans play their self-invented instruments for a number



of years in which they have done several iterations / extensions and built a lot of performance experience. This experience pays off in the expressive capabilities of both performers making this a concert that goes far beyond an extended demonstration of new instruments. In *Violent Dreams*, Hans's manipulated sounds are recorded in CataRT, from which Diemo chooses specific sonic characters and evolutions via gestural controllers, that are played back and transformed by CataRT, challenging Hans to come up with more extreme sounds surpassing his own originals. Thus we get an interesting and challenging improvisation battle between two players that both fully master their instrument.

the ellipsis catalog

Kevin Patton (Fossil), Butch Rován (Banshee)

the ellipsis catalog features new instruments designed by Kevin Patton and Butch Rován. Patton's instrument, the "Fossil", is a wireless sensor-based musical instrument that is played with the entire gestural range of arm movement as well as finger pressure. Four FSRs, a momentary button, and a two-dimensional accelerometer are used to control the parameters of a custom software environment built in Max/MSP/Jitter. It is part of a group of four hand-carved wood instruments called the Digital Poplar Consort.

Rován's "Banshee" is an analog electronic musical instrument. Modeled after a wind instrument, the design uses six finger pads to control the pitch of an array of interrelated oscillators, and a mouth sensor that allows the performer to control volume. The Banshee also features a tilt-sensor that allows motion to change the voicing circuitry and resulting timbre. Battery powered, the instrument can plug into any amplifier or mixing console, much like an electric guitar.

Clarinet (Albino Butterfly)

Martin Marier (Sponge)

Clarinet is the third piece in a series of monotimbral works. Like its siblings *Piano* and *Cymbal*, it was inspired by the sound qualities of an acoustic instrument. This minimalist and meditative piece is a structured improvisation performed on the sponge, a musical interface designed by the composer. The sponge is basically a cushion equipped with sensors (accelerometers, buttons and force sensing resistors) which detect when it is squeezed, twisted or shaken. Because the sponge evolves continuously, the piece exists in many versions. Each new version drifts further away from the original compositional intentions and the piece is slowly becoming less meditative. The latest version is subtitled Albino Butterfly.

Monday May 21, 11:00pm

North Quad Space 2435

Music for Sleeping & Waking Minds

Gascia Ouzounian (composition & production), R. Benjamin Knapp (physiological interface & interaction design), Eric Lyon (audio interface & interaction design), R. Luke DuBois (visual interface & interaction design)

Music for Sleeping & Waking Minds (2011-2012) is an overnight event in which four performers fall asleep while wearing custom designed EEG sensors, which monitor their brainwave activity over the course of one night. The data gathered from the EEG sensors is applied in real time to different audio and image signal processing functions, resulting in a continuously evolving multi-channel sound environment and visual projection. This material serves as an audiovisual description of the individual and collective neurophysiological state of the ensemble, with sounds and images evolving according to changes in brainwave activity. Audiences, who are invited to bring anything that they need to ensure comfortable sleep, can experience the work in different states of attention: while alert and sleeping, resting and awakening.



Tuesday May 22, 7:00pm

Lydia Mendelssohn Theatre

Of Dust and Sand

Per Bloland

Daniel Graser (alto saxophone), Veena Kulkarni (piano)

Of Dust and Sand uses the Electromagnetically-Prepared Piano device, a rack of 12 electromagnets which is suspended over the strings of a piano. Each electromagnet is sent an audio signal and in turn excites its respective string, much like a stereo speaker made from piano strings. In this piece a subset of the magnets remains active throughout, the performer physically silencing the strings by pressing down with fingertips. Thus the instrument becomes a kind of anti-piano—lifting a finger frees a string to vibrate, producing sound. In addition, various items, such as paper and a plastic ruler, rest directly on the strings further altering the timbre. Remember—everything you hear is entirely acoustic.

Of Dust and Sand is dedicated to The Kenners.

Jack Walk

Scott Deal

Scott Deal (percussion), Michael Drews (audio electronics), Jordan Munson (video)

Jack Walk explores notions of ecstatic energy, control and release. The work begins with live and fixed percussion lines, re-processed into a series of electronic representations of specified structure. This provides a compositional framework that a percussionist interacts with, while in another sonic layer, a laptop musician simultaneously samples and re-processes the live percussion while channeling the audio back into the larger environment. A videographer mixes imagery related to the original compositional notions of ecstatic control and release. Layers of sonic material emanating from the drummer's kit blur the virtual and real, while the music and imagery evoke imaginary lines tracing physical and conceptual flows of energy. The trio of performers for the NIME 2012 performance of *Jack Walk* (Deal, Drews, and Munson) comprise group known as Big Robot, an Indianapolis-based computer-acoustic trio that creates live, interactive, and media-enriched works.

Desamor I

Roberto Morales-Manzanares (piano, percussion and electronics)

Desamor I is inspired in a model of meditation where primordial awareness or naturally occurring timeless awareness is seen as a result of a conversation with my wife Alejandra. This work is for piano, computer and two Wii controllers attached to my forearms. The output is 4 channels. The gestures of the pianist (movement, timber and dynamics) are captured in real time via 2 microphones and a set of 2 Wii controllers. The computer languages involved in the development of the project were: Escamol, a prolog environment for algorithmic composition designed by the composer, and SuperCollider. In this piece I share my experience as a performer-composer within a multi-platform programming environments involving signal processing and machine learning techniques.

Flue

Bill Hsu

Bill Hsu (electronics, interactive animation), Matt Endahl (piano), Mike Khoury (violin)

Flue is a structured audio-visual improvisation for three musicians, utilizing live acoustic and electronic sound and interactive animations. A physics-based smoke simulation is influenced by the real-time audio from the musicians' performance. The audio from the performance is analyzed; high-level tempo, spectral and other features are extracted, and sent via Open Sound Control to the animation environment. The smoke trails are also able to coalesce into well-defined symbols and forms, all while moving in a natural-seeming manner consistent with the underlying fluid simulation.

Vocalise, Op.34 no. 14

Sergei Rachmaninoff

Medley (Good Vibrations/God Only Knows)

Brian Wilson

Jonathan Golove (Theremin cello), Magnus Martensson (piano)

The most impressive uses of the theremin cello during Theremin's time in New York are Leopold Stokowski's inclusion of one in the Philadelphia Orchestra's low string section and Varese's composition of two solo parts in Ecuatorial. Even more important, from my perspective, is the fact that the instrument represents the first attempt to harness the human potential to

shape and manipulate electronic sound by means of the technical apparatus of the modern player of bowed string instruments.

Rachmaninoff's *Vocalise*, Op. 34 no. 14, for textless high voice, highlights the hauntingly vocal quality of the theremin cello. *Vocalise* is the last of a set of 14 songs published in 1912, less than a decade before Theremin's experiments with musical sounds began to bear fruit.

Brian Wilson and the Beach Boys, by virtue of their use of Bob Whitsell's Electro-Theremin on several recordings, are irrevocably linked to the history of the theremin.

Thought.Projection

Robert Alexander, David Biedenbender, Anton Pugh, Suby Raman, Amanda Sari Perez, Sam L. Richards

Jeremy Crosmer (violoncello), Robert Alexander (MiND Synth / Emotiv), Anton Pugh (MiND Synth / Emotiv)

The MiND Ensemble (Music in Neural Dimensions) is a new-media performance group that utilizes custom interfaces to explore the mind-machine-music connection. The traditional realization of the creative process has been as follows: there is an artist, a thought process, and a fixed medium which actualizes those thoughts. Neurofeedback radically shifts this paradigm. Now there is an artist and a dynamic medium that actively interfaces with the thought processes of the artist himself, drastically reshaping the way we understand the creative process. The MiND Ensemble promotes a rich awareness in which the mind is the creative medium. All projection and audio processing in this piece are driven in real time, with data gathered from the Emotiv EPOC headset.

Eigenspace

Mari Kimura (violin), Tomoyuki Kato (interactive graphics)

Eigenspace (2011) is a collaborative project with Japan's leading visual artist in new media, Tomoyuki Kato (Movie Director), with Yoshito Onishi (Image Programing), and Chisako Hasegawa (Producer). As Japanese, we were deeply touched by the Fukushima nuclear meltdown, the worst manmade catastrophe in the history of the human kind, which is not contained today contaminating the globe. *Eigenspace* is about our love and prayer for the humankind and our planet, and for the next generation. The name is also taken from "eigenvalue," a mathematical function used in analyzing the bowing movement, which interacts in real time with Mr. Kato's software.

The musical expression is extracted by IRCAM's "Augmented Violin" and their newest motion sensor "mini-MO", custom-fit into a glove designed by Mark Salinas. Special thanks to the Real Time Musical Interactive Team at IRCAM. Eigenspace was commissioned by Harvestworks, and premiered at Roulette in Brooklyn, on October 9th, 2011.

Where Are You Standing?

Bongjun Kim, Woon Seung Yeo

Bongjun Kim (operator), Woon Seung Yeo, Jeong-seob Lee, Seunghun Kim, Xuelian Yu (iPhones)

Where Are You Standing? (2012) is a collaborative mobile music piece using the digital compass on mobile phones as an intuitive, interactive musical instrument. The piece features performers on stage making sound by aiming at other performers: compass-measured orientation of each aiming gesture is mapped to a specific musical note depending on which player is aimed at, and is visualized on screen in real-time.

The piece begins with three performers playing "harmonic" sounds by taking aim at each other. This consonance is broken by the introduction of the fourth performer who represents conflict: the notes played by this performer as well as the notes played by others when they aim at this performer are dissonant to cause musical tension. Finally, the last performer leaves the stage to resolve the tension, and the piece ends with three performers back in congruity.

Tuesday May 22, 9:00pm

Necto

Pencil Fields

Palle Dahlstedt (pencil fields interface & modular synthesizer)

An improvised performance on a custom built instrument, using a simple pencil drawing as a gestural interface for controlling complex analog synthesis. The interface works by using the resistive properties of carbon to create a voltage potential field in the graphite/pencil markings on the paper using custom movable electrodes, made from coins. Then, control voltages are extracted from other points on the paper, controlling various aspects of the synthesized sound. The design was inspired by my previous research in complex mappings for advanced digital instruments, and provides a similarly dynamic playing environment for analogue synthesis. The interface is very lo-tech, easy to build, and should be possible to use with any analogue modular synthesizer. Here, I use it with a Bugbrand modular, built by Tom Bugs in Bristol, UK. The interface is presented in more detail in a paper presentation at the NIME conference.

Munich Eunuch

Daniel Brophy (electronics), Colin Labadie (electronics)

Many of the discourses around technological development in music are deeply concerned with aspects of control; i.e. how does one exert their control, or “mastery” over the technology they use. However, we propose that technological systems with a certain amount of unpredictability and randomness may also be useful, especially for improvisation. As an improvisation duo, our method often involves designing electronic instruments whose behaviors are somewhat unpredictable. As a result, our entire aesthetic is largely based on “riding” the boundary of control. Working in this way creates a situation where we are often forced to react to, and work with, the unexpected.

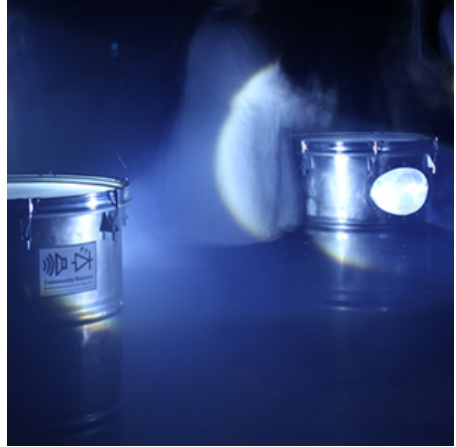
Our improvisation features a number of handmade and hacked electronic instruments, all of which have been designed to behave somewhat unpredictably.

Thunderclap For Six Kinetic Light Drums

Jenn Figg, Matthew McCormack, Paul Cox

Ryan Hilty, Samuel Haese, Eric Young (Kinetic Light Drums)

This work merges sound and light to illuminate complex rhythmic motives, polyrhythms and metrical patterns in a visual display generated by three drummers playing six “light” drums. These new instruments bring to life the dreams of 20th century synesthetes, such as Wassily Kandinsky and Alexander Scriabin and others who sought to create an imagined “visual music,” an ideal synthesis of music and visual art. Community Light Beacons are percussion instruments that leverage the potentials of music, analog technology, and human-generated power to visualize sound. These instruments add the dimension of light to the ancient tradition of drumming. The drums are user-powered, and when they are played—banged, hit and tapped—the vibrations from the drumhead are converted to electricity by the internal speaker transducer. The generated energy powers ultra bright LEDs, which light up with every hit and beam out from the Fresnel lens.



InHands: Improvisation for Mobile Phones

Koray Tahiroğlu (mobile phones)

InHands, an audiovisual real-time improvisation for mobile phones, explores alternative options for musical interactions with two mobile instruments in live performances. In this improvisation piece, sound output of each mobile phone instrument becomes a sound input for the other instrument; to be processed further with an act of responding immediately and spontaneously. Granular synthesis module captures audio in real-time and creates the grains based on the texture of the sounds. Magnitude, roll and pitch values of the acceleration are mapped to the control parameters. In the control layer of Sub-synthesis module, the change in direction of a touch position is tracked

on the mobile surface and the distance of the same touch position to 4 certain points on the touchscreen is used as a source for creating frequency values. This mapping model generates 4 control parameters throughout 2 dimensional input layers. Hannah Drayson created the abstract visual-layers of this piece.

Modified Attack

Levy Lorenzo

When designing my new electronic instruments, I always keep in mind the relationship between the instrument and performer as a tool and its master. The instrument should be a channel by which the performer can access the dimensions of sound in order to attempt to make music. The music should then originate from the musicians intention and not the instrument itself. Thus, I design my instruments as intuitive, transparent, and non-idiosyncratic mappings between physical gesture and sound.

This new electronic instrument remaps a Logitech Attack 3 Joystick to be able to control sound. Through the joystick, the performer can control volume, rhythm, repetition, and pitch of custom, preprogrammed sounds. Additionally, the joystick can be used to record and playback short audio loops. The product of this design allows for agile and intentional electronic musical gestures where rhythm, volume, and pitch are clear and deliberate. I have been able to reach a wide range of musical expressions and I am learning and discovering more as I practice MODIFIED ATTACK.

Music for Flesh II, interactive music for enhanced body

Marco Donnarumma (Xth Sense)

The work is a seamless mediation between human biosonic potential and algorithmic composition. By enabling a computer to sense and interact with the muscular sonic potential of human tissues, the work approaches the biological body as a means for computational artistry. Muscle movements and blood flow produce subcutaneous mechanical oscillations, which are nothing but low frequency sound waves. Two microphone sensors capture the sonic matter created by my limbs and send it to a computer. This develops an understanding of my kinetic behaviour by listening to the friction of my flesh. According to this information, it manipulates algorithmically the sound of my flesh and diffuses it through loudspeakers. The neural and biological signals that drive the performer's actions become analogous expressive matter, for they emerge as a tangible haunting soundscape.

Wednesday May 23, 7:00pm

Lydia Mendelssohn Theatre

Motion-Influenced Composition

Eli Stine

This piece consists of a partially pre-composed acousmatic composition actualized in real time by hand motion. The audio generated by the hand motions is analyzed, colorized and projected beside the performer during the performance. The motions and content of this piece are inspired by the late Merce Cunningham and this performance is dedicated to him.

Fragments

Thomas

Ciufo

Fragments is an improvisational performance piece that utilizes physical treatments inside an acoustic piano, as well as digital treatments provided by computer-based digital signal processing. In addition to using a few simple physical controls (foot pedals and custom iPad interface) this piece also uses the performed audio stream as a gestural control source. The preformed audio stream is analyzed and important features are extracted. The current state and trajectory of these audio features are used to influence the behavior of the real-time signal processing environment. This creates a computer-mediated performance system that combines the capabilities of computation and sound processing with the tactile and expressive intimacy of the prepared acoustic piano. *Fragments* invites the listener into a unique and complex sonic environment where expectation, repetition, spontaneity, and discovery are intertwined.



Fragmentation

Alberto Novello

Alberto Novello (music, EEG analysis, top visuals), Emmanuel Elias Flores (frontal visuals), Honza Svasek (Butoh, EEG control), E. McKinney (photography)

In this piece we explore the personality of the “post-modern man”. Exposed to aggressive stimulation and overwhelming data streams, he must make important choices to follow a rational “mind path” while his time quickly runs out. The performer, impersonating the post-modern man, wears an electroencephalographic headset that detects his mind activity. The analysis of its output reveals the power of the performer’s three thoughts



which are connected to forward movement, turn left, and turn right in the virtual maze projected on a screen. Despite the distracting external forces, embodied by the sound and flickering visuals, the performer must remain paradoxically calm to generate the correct states of mind that let him navigate his way out of the maze. Every time the performer crosses a red boundary in the maze, he gets closer to the exit, and a new stochastic musical scene is triggered. The time and structure of the composition is thus entirely determined by the choices and concentration of the performer.

Måne Havn (mounhoun): An Exploration of Gestural Language for Pitched Percussion

Shawn Trail, Thor Kell, Gabrielle Odowichuk (Artistic Director)

Shawn Trail (xtended Vibraphone, Notomoton- robotic drum, suspended cymbal)

Måne Havn (mounhoun) is an improvisational multi-media performance system for extended vibraphone with accompanying custom LED sculptures and projected visuals. The music draws specifically from NYC free jazz, the funeral music of the Lobi people of northern Ghana, Dub, psych rock and minimalism. Abstract interactive light sculptures actuated from the instrument’s audio and controller data will accompany the performance, creating a visually shifting immersive space. The sculptures, named ‘Takete’ and ‘Maluma’, reference Gestalt psychology and the known correlation between

our perceptions of sound and light. Mappings will reflect this phenomenon. The piece uses a pitched percussion tool suite developed by the Music Intelligence & Sound Technology Collective at the University of Victoria, including: Magic Eyes (3D gesture controller), Ghost Hands (control data looper), MSTR DRMMR++ (rhythm template as control switches), Fantom Faders (vibraphone bars as control faders) and Gylil Gourd (physical modeling of the Lobi xylophone's gourd resonator).

Texturologie 12: Gesture Studies

James Caldwell (Wii remotes)

Texturologie 12: Gesture Studies (2011) is the most recent of my series of pieces that explore the creation of intricate continuous-field textures (and borrow the name of a series of paintings by Dubuffet). In this piece, I return to my explorations of the potential of the Wii™ remote to control computer music in performance. This time, I tried to treat the physical gesture as the germ or motive for the music. Some of the gestures are abstract, but some are suggestive of familiar activities like petting a cat, ringing a bell, smoothing wallpaper, playing a guiro, scooping, tapping, or vigorous stirring. (Check out the videos of my other Wiii™ pieces on YouTube. Search “Caldwell wii.”)

Mimi: Multi-modal Interaction for Musical Improvisation

Isaac Schankler, Alexandre François, Elaine Chew

Isaac Schankler (keyboard & electronics), Mimi (keyboard & electronics)

Mimi, designed by Alexandre François with input from Elaine Chew and Isaac Schankler, is a multi-modal interactive musical improvisation system that explores the impact of visual feedback in performer-machine interaction. The Mimi system enables the performer to experiment with a unique blend of improvisation-like on-the-fly invention, composition-like planning and choreography, and expressive performance. Mimi's improvisations are created through a factor oracle. The visual interface gives the performer and the audience instantaneous and continuous information on the state of the oracle, its recombination strategy, the music to come, and that recently played. The performer controls when the system starts, stops, and learns, the playback volume, and the recombination rate. Mimi is not only an effective improvisation partner, it also provides a platform through which to interrogate the mental models necessary for successful improvisation. This performance also features custom synths and mechanisms for inter-oracle interaction created for Mimi by Isaac Schankler.

Ambiguous Devices

Paul Stapleton (Networked Instrument), Tom Davis (Networked Instrument)

This performance explores notions of presence and absence, technologically mediated communication and audience perception through the staging of intentionally ambiguous but repeatable sonic interactions taking place across two geographically separate locations.

Thanks to SARC, CCRMA & Bournemouth University for support during the development of this project.

Wednesday May 23, 9:00pm

Necto

The Theremin Orchestra

Mercedes Blasco

Mercedes Blasco (voice, Theremin controllers, EMS synth), Thessia Machado and Sonia Megías (voice, Theremin instrument)

The Theremin Orchestra is a composition for three voices and a modular system of four spheres with built-in Theremin Sensors. Two of those spheres will control different effects on the voices and the rest will be played as Theremin instruments. The performance is presented as a sound event where initially the three voices appear raw and naked and as the composition unfolds the voices will be increasingly distorted through different effects applied with the Theremin controllers. In the climax of its progression the other two Theremin balls will become audible merging their sound with the mesh of vocal reshaped sources, not allowing to distinguish where the human ends and the machine starts.



Stelaextraction

Alexander Dupuis (Yerbanaut)

Stelaextraction uses the electronic extension capabilities of the Yerbanaut to construct a musical composition through self-reference across different timescales. The Yerbanaut is a custom electro-acoustic kalimba built from a yerba mate gourd, with the tines placed in a circular pattern rather than the usual horizontal arrangement. Its sensors are intended to make use of this new arrangement, with force-sensitive buttons giving the otherwise inert left hand expressive capabilities, and a distance sensor allowing the right hand's motion to determine aspects of the processing. In *Stelaextraction*, all acoustic and processed sounds are recorded to a single buffer, the contents of which can be scrubbed through using the right hand's distance sensor. In this way, past musical gestures can be explored and then re-explored, with the recur-

sive processing developing self-similar musical patterns over the course of the piece.

Fieldwork

Christopher Burns

Christopher Burns, Andrew Bishop

Fieldwork is a software environment for improvised performance with electronic sound and animation. Two musicians' sounding performances are fed into the system, and analyzed for pitch, rhythm, and timbral change. When the software recognizes a sharp contrast in one performer's textures or gestures, it reflects this change by transforming the sound of the other musician's performance. Not only are the musicians responding to one another as in conventional improvisation, but they are also able to directly modify their duo partner's sound through the software. *Fieldwork* emphasizes rapid, glitchy, and polyrhythmic distortions of the musician's performances, and establishes unpredictable feedback processes that encourage unexpected improvisational relationships between the performers and computer.

four fragments—A Performance for Swarming Robotics

Yuta Uozumi, Keisuke Oyama, Jun Tomioka, Hiromi Okamoto, Takayuki Kimura

This performance aims to approach the next style of "mashup" and/or "Cut-up" via fusion of paradigms of artificial-life and turntable. We developed a system named "SoniCell" to realize it. SoniCell employs four robots called "cell". Each cell behaves as a metaphor of life based on a simple interaction model with prey-predator relationship. Each cell is assigned a music-track in the manner of turntable. Therefore, the system reconstructs and mixes the music-tracks via cells' interactions and performers' interventions. In this framework, the aspects of the system and performers interactions and cells' internal-states create structures of sounds and music from different tracks.

Sandbox#3.6

Pierre Alexandre Tremblay

A bass guitar and a laptop.

No sequence, no set list, no programme, no gizmo, no intention, no fire-works, no meaning, no feature, no beat, no argument, no nothing.

Just this very moment with my meta-instrument: a third sandbox in which I play in public for the sixth time, here, whatever happens.

DaisyLab, a Phonetic Deconstruction of Humankind

Nicolas d'Alessandro (HandSketch, iPad), Diemo Schwarz (CataRT, gestural controllers)

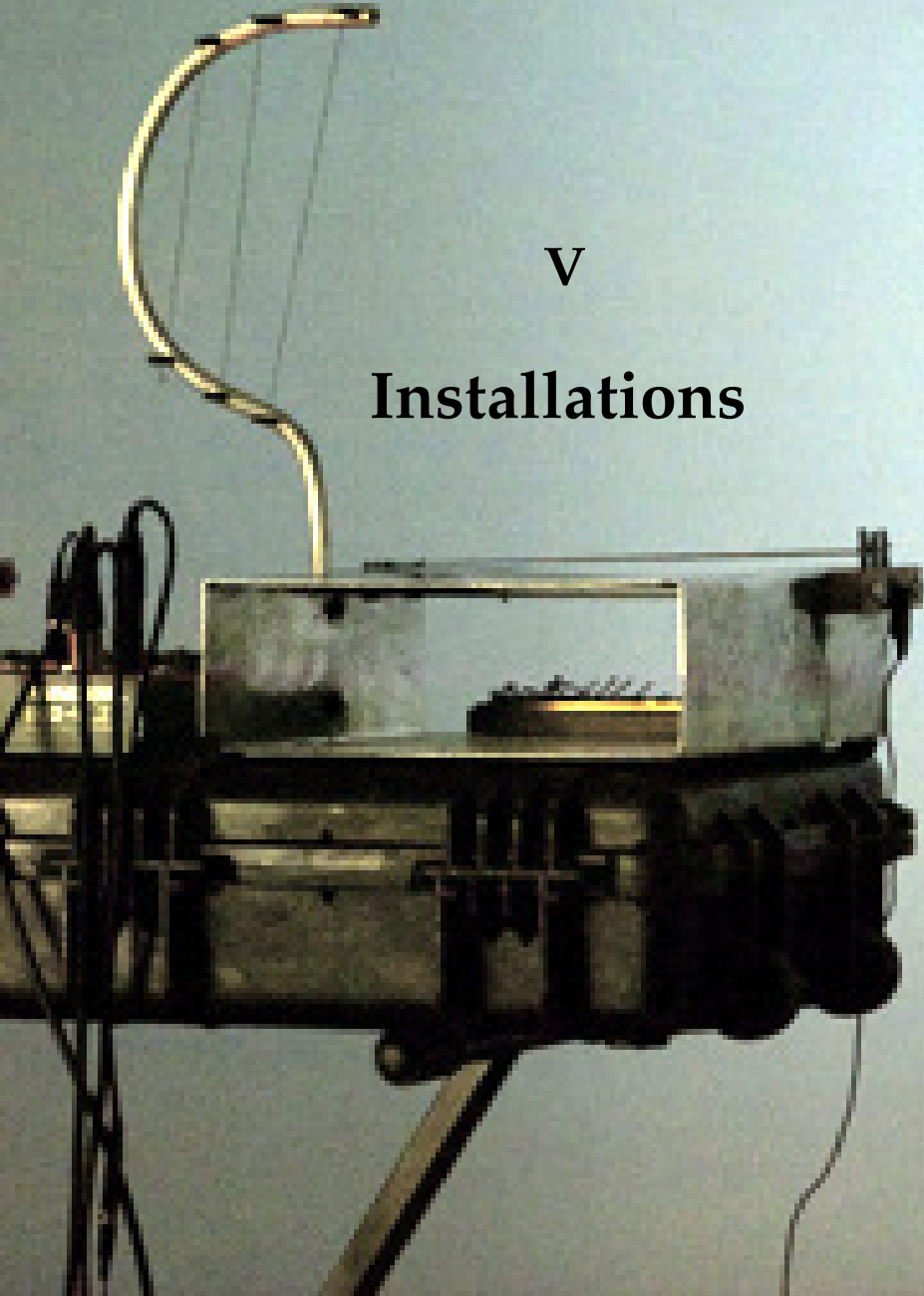
DaisyLab is a duet performance for two new interfaces for musical expression that have in common the ability to generate versatile vocal material. Diemo Schwarz's instrument uses a variety of sensors on the top of corpus-based concatenative synthesis, which has been fed with voice sounds for this performance. Nicolas d'Alessandro plays the HandSketch interface over the new MAGE speech synthesizer, bringing tangible inputs to an

emerging speech synthesis technique. Both systems have been submitted as long papers for this 2012 edition of NIME. Together these two performers explore the boundaries between vocal and non-vocal sonic spaces, aiming at deconstructing the humankind's most ubiquitous communicative channel through a compositionally directed improvisation, a "comprovisation."



V

Installations



Wisker Organ – Alison Kotin

Location League 2nd Floor Lobby Concourse 1

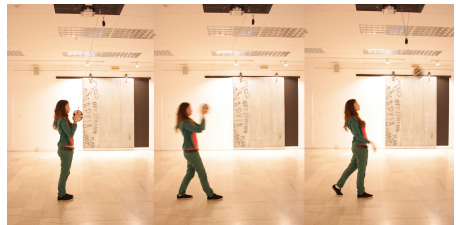
Whisker Organ is an interactive sound instrument linking the voices of a 30-person chorus with 48 black cat whiskers. Through touch, visitors to the piece activate the sound of massed voices singing, creating spontaneous, infinitely-variable musical compositions. Whisker Organ is built on a system of piezoelectric sensors connected to a series of microprocessors, which in turn control sound output to an external speaker system. The sonic experience is oversized, unexpected, and richly human. The tactile experience is mysterious, perhaps evoking a frisson of discomfort, but also inescapably compelling. Whisker Organ both requires and enables the leap of imagination necessary to make sense of the joining of two organic but otherwise unconnected references. Whisker Organ was created in collaboration with the Oriana Consort who performed the vocal notes for the instrument. The music that forms the basis of Whisker Organ's sound output was composed in 2011 by Walter Chapin.



Aura: Presence/ without* Manual – Esther Lemi and Jan Schacher

Location Duderstadt

“Aura: Presence/without* Manual” is a soundsculpture which functions as a transducer converting motion into sound in the form of a pendulum. The loud-speaker becomes the interactive means through which movement can become sound. Its internal functions corresponds to the behaviour of the human element. The live-object is built to react to its human counterpart in order to achieve the



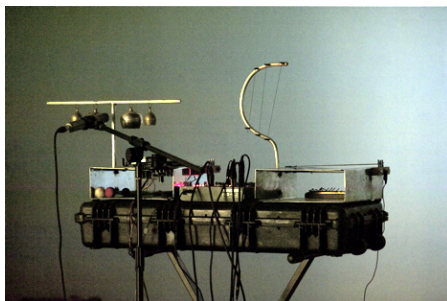
lightness of a sound-element in flux. With the hand as a source, the visual aspect of the object's motion and the acoustic are combined with the movement and result in creating acoustic and visual correspondences. These correspondences enable the comprehension of a system which is created by the interaction itself, a game of balance which can keep us immersed in a minimum amount of information.

Ambiguous Devices – Paul Stapleton and Tom Davis

Location Mendellsohn 2nd floor Lobby

This installation explores notions of presence and absence, technologically mediated communication and participant perception through a mix of directly physical and intentionally ambiguous sonic interactions taking place across two geographically separate locations.

Thanks to SARC, CCRMA and Bournemouth University for support during the development of this project.



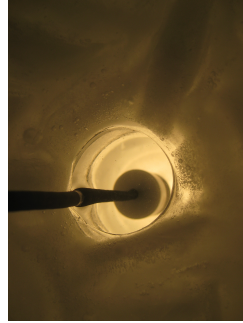
puShy - a tactile sonic interface – Roberto Pugliese

Location Duderstadt

Cryoacoustic Orb – Jonathon Kirk and Lee Weisert

Location League 2nd Floor Kalamazoo

Cryoacoustic Orb is a sound installation involving multiple illuminated acrylic orbs filled with slowly melting ice. Hydrophones frozen inside the ice amplify the sounds of the melting process, which are electronically processed and spatialized throughout the darkened gallery space. The result is a unique ambient soundscape that evolves over the course of several hours.



Strings – Luisa Pereira Hors, Monica Bate, and Johann Diedrick

Location Duderstadt

Halfway between instrument and sculpture, Strings is a sound installation that invites participants to play, hear and move within a space, becoming part of a musical instrument. Strands of thread are tensed in oblique planes—from ceiling to floor, from wall to wall—, defining an architectural space that invites visitors in. Once inside, they become performers, moving through the space to find different ranges of pitch and timbres in the instrument that surrounds them. The sounds are generated synthetically but, as is the case with traditional acoustic instruments, the experience includes texture, space, color and movement.



Social Structure [Construction no.1] – Jesse Allison, Nick Hwang, Michael Straus

Location League 2nd Floor Hussey

Social Structure [Construction no. 1] (interactive installation) addresses concepts of resonance, feedback, deconstruction, and inundation in the contexts of sound, music, and social media. The installation is a collection of position-aware resonant acrylic cubes that, depending on their placement, respond with varying audio and projected visual.

Mutatis Mutandis – Nolan Lem, Tristan Telander, and Kip Haaheim

Location League 2nd Floor Vandenberg

Mutatis Mutandis is a multi-sensory installation that uses glaciological data to control an audio and visual environment. This data is interpreted in several ways including using the data to control parameters of sound files containing actual recorded glaciers (calving, ice-cracking, melting, sheet friction, etc.) and processing the data to synthesize sound and visualizations. The glacial sounds were collected from researchers and acousticians across the world, much of it field recorded in Antarctica. These audio-processes are distributed to several speakers located around the space.



Because glaciological change can take place over extremely long durations of time, this installation exposes various characteristics of glaciological history by accelerating their rates of change. To symbolize the real-time aspect of glaciological change, a large ice block is placed in the middle of the space, slowly melting throughout the installation's duration. This project uses data taken from all over the world including WGMS (World Glacier Monitoring Service), NOAA (National Oceanic and Atmospheric Administration), CrESIS (Center for the Remote Sensing of Ice Sheets) and the US census bureau.

Neurime – Michael Rosen and Eszter Ozsvald

Location Duderstadt

Neurime is an adaptive large scale instrument inspired by neural networks.

Cor Cordis – Clare Cullen and Evan Morgan

Location League 2nd Floor Hussey

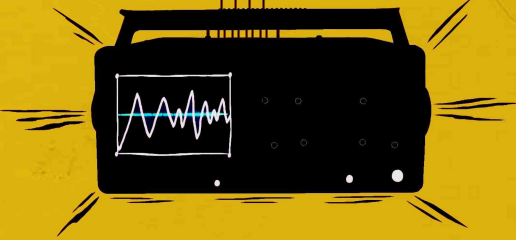
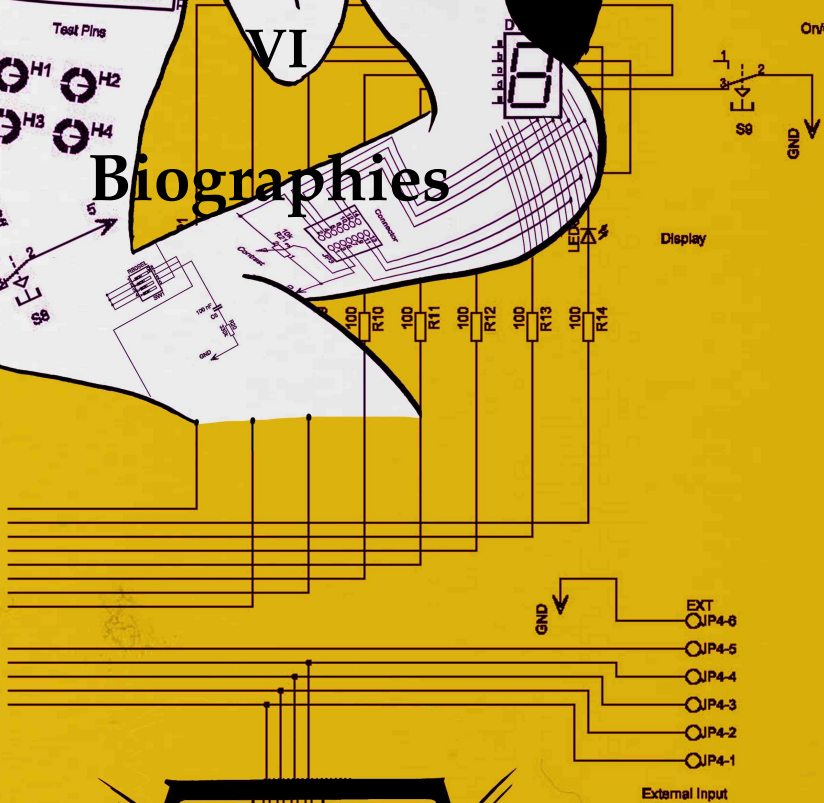
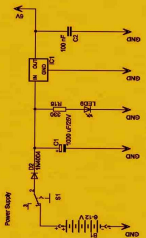
Cor Cordis is an interactive sculpture for collaborative biofeedback performance. The light sculpture responds to changes in the heart rate and respiratory movements of individual participants, providing them with an audio-visual representation of their biofeedback in real-time.

Up to four participants are asked to wear wireless sensor devices and this data is used to generate algorithmic composition and accompanying light feedback. Participants can work together to develop a collaborative performance, engineering changes through breathing and heart rate.



Biographies

- RBD Schematic:
1. LED on RBD
 2. Integrator on RBD
 3. Amplifier on RBD
 4. Sound Generator



External Input

Robert Alexander is a Sonification Specialist with the Solar Heliospheric Research group at the University of Michigan, where he is pursuing a PhD in Design Science. He was awarded a JFPF Fellowship from NASA, an Outstanding Achievement award from ICAD, and is an Artist in Residence with the Imagine Science Film Festival. He has collaborated with artists such as DJ Spooky, and performed on several international stages. He founded the MiND Ensemble in 2010.



Mark Applebaum is Associate Professor of Composition at Stanford University where he received the 2003 Walter J. Gores Award for excellence in teaching. He was recently named the *Hazy Family University Fellow in Undergraduate Education and Leland & Edith Smith Faculty Scholar*. He received his Ph.D. in composition from the University of California at San Diego where he studied principally with Brian Ferneyhough. His solo, chamber, choral, orchestral, operatic, and electroacoustic work has been



performed throughout the United States, Europe, Africa, South America, and Asia. Many of his recent works are characterized by challenges to the conventional boundaries of musical ontology: works for three conductors and no players, a concerto for florist and orchestra, pieces for instruments made of junk, notational specifications that appear on the faces of custom wristwatches, works for an invented sign language choreographed to sound, amplified Dadaist rituals, and a 70-foot long graphic score displayed in a museum and accompanied by no instructions for its interpretation.

Jesse Allison holds an appointment in Experimental Music and Digital Media at Louisiana State University. As part of the Center for Computation and Technology's AVATAR initiative, he actively investigates, through research and collaboration, the intersection of technology and art. Prior to coming to LSU, he helped found the Institute for Digital Intermedia Art at Ball State University. He is also President of Hardware Engineering of Electrotap, LLC, an innovative electronic arts company. Currently he is enthralled with the relationship of location to sound and performance as manipulated by mobile technology, collaboration, perception, and time. Allison has disseminated sonic artworks and research around the globe through live perfor-

mance art, interactive installations, virtual and hybrid-world installations, and various writings on art and technology. Recent performances/exhibits include Siggraph, Techfest Bombay, ICMC, Pixilerations, Boston Cyberarts Festival, and SEAMUS. [alisonic.com | emdm.music.lsu.edu | electrotap.com]

Mónica Bate holds a degree in Fine Arts from Universidad de Chile. Her personal work, which has been exhibited in Chile and other Latin American countries, focuses on creating narratives using sound as a matter of expression, reflection and representation.

David Biedenbender is currently a doctoral student in music composition at the University of Michigan. His first musical collaborations were in rock and jazz bands as an electric bassist and in jazz and wind bands as a bass trombonist and euphonium player. His present interests include working with everyone from classically trained musicians to improvisers, fixed electronics to brain data.

Andrew Bishop is a versatile multi-instrumentalist, composer, improviser, educator and scholar comfortable in a wide variety of musical idioms. He maintains a national and international career and serves as an Assistant Professor of Jazz and Contemporary Improvisation at the University of Michigan in Ann Arbor. Bishop's two recordings as a leader have received widespread acclaim from *The New York Times*, *Downbeat Magazine*, *Chicago Reader*, *All Music Guide*, *Cadence Magazine*, *All About Jazz-New York*, *All About Jazz-Los Angeles*, and the *Detroit Free Press*, among others. As a composer and arranger he has received over 20 commissions, numerous residencies and awards and recognition from ASCAP, the Chicago Symphony Orchestra, the Andrew W. Mellon Foundation, the National Endowment for the Arts, Chamber Music of America and a nomination from the American Academy of Arts and Letters. He has performed with artist in virtually every musical genre. He earned five degrees in music including a D.M.A. in music composition from the University of Michigan.

Trained as a Telecommunications Engineer, **Merche Blasco** developed in parallel to her studies a more creative path related with music, video, installation and performance. She created her alter ego "Burbuja" as a vehicle for her own musical exploration and since its conception she has participated & collaborated with various artists, establishing a strong relationship between different mediums of artistic expression & her own musical direction (such as Lucy Orta at the Venice biennale, Chicks on Speed and Cristian Vogel). Her debut, "burbuja" (station55 records) was presented in Sonar 2007 and has been touring in different cities in Europe, USA and Canada in the past years: Mapping Festival (Geneve), Sonic Art Circuits (Washington), Queens Museum of Art (New York). Thanks to a Fulbright Grant she is currently a MPS Candidate in the Interactive Telecommunications Program (NYU) where she is mainly researching about new tools for Electronic Music Performance.

Per Bloland is a composer of acoustic and electroacoustic music whose works have been described as having an “incandescent effect” with “dangerous and luscious textures.” His compositions range from short intimate solo pieces to works for large orchestra, and incorporate video, dance, and custom built electronics. He has received awards and recognition from organizations such as SEAMUS/ASCAP, Digital Art Awards of Tokyo, ISCM, and SCI/ASCAP. He is currently a Visiting Assistant Professor of Computer Music at the Oberlin College Conservatory, and serves as the founding director of OINC, the Oberlin Improvisation and Newmusic Collective. For more information, please see: www.perbloland.com.



Daniel Brophy is a composer, performer and improviser of various musical styles and instrumentations ranging from orchestral and chamber music to extreme metal, sound installations, experimental improvisation and noise. He is a recipient of a SSHRC research grant, the 2012 KW Chamber Orchestra composition prize, the University of Alberta’s President’s Award of Distinction, and a Queen Elizabeth II Graduate Scholarship. Daniel currently resides in Edmonton, Alberta where he is pursuing



a Doctor of Music degree in composition under the supervision of Dr. Scott Smallwood. He is member of the noise duo MUGBAIT and is proud to have worked with a number of other wonderful musicians, dancers and visual artists such as The Enterprise Quartet, junctQin, Digital Prowess, TorQ, Gerry Morita, Werner Friesen and many others. Daniel is currently developing interactive clothing for dancers, utilizing a combination of high and low technology.

Christopher Burns is a composer, improviser, and multimedia artist. His instrumental chamber works weave energetic gestures into densely layered surfaces. Polyphony and multiplicity also feature in his electroacoustic music, embodied in gritty, rough-hewn textures. As an improviser, Christopher combines an idiosyncratic approach to the electric guitar with a wide variety of custom software instruments. Recent projects emphasize multimedia and motion capture, integrating performance, sound, and animation into a unified experience. Across these disciplines, his work emphasizes trajectory and directionality, superimposing and intercutting a variety of evolving processes to create form. Christopher is an avid archaeologist of electroacoustic music, creating and performing new digital realizations of classic music by composers including Cage, Ligeti, Lucier, Nancarrow, Nono, and Stockhausen. A committed educator, he teaches music composition and technology at the University of Wisconsin-Milwaukee. He has studied composition with Brian Ferneyhough, Jonathan Harvey, Jonathan Berger, Michael Tenzer, and Jan Radzynski.



James Caldwell (b. 1957) is Professor of Music at Western Illinois University and co-director of the New Music Festival. He was named Outstanding Teacher in the College of Fine Arts and Communication (2005) and received the inaugural Provost's Award for Excellence in Teaching. He was named the 2009 Distinguished Faculty Lecturer. He holds degrees from Michigan State University and Northwestern University, where he studied composition, theory, and electronic and computer music. Since 2004 he has studied studio art—drawing, lithography, painting, and sculpture—at WIU as a way to stretch creatively and again experience being a student.

Elaine Chew is Professor of Digital Media at Queen Mary, University of London, and Director of Music Initiatives at the Centre for Digital Music. An operations researcher and pianist by training, her research goal is to de-mystify music and its performance through the use of formal scientific methods; as a performer, she collaborates with composers to present eclectic post-tonal music. She received PhD and SM degrees in Operations Research from MIT and a BAS in Music and Mathematical & Computational Sciences from Stanford. She is the recipient of NSF Career and PECASE awards, and a Radcliffe Institute for Advanced Studies fellowship.

Thomas Ciuffo is a composer, improviser, sound artist, and researcher working primarily in the areas of electroacoustic improvisational performance and hybrid instrument / interactive systems design. He currently serves as Assistant Professor of Recording Arts and Music Technology in the Department of Music at Towson University. He has been active for many years in the areas of composition, performance,

interactive installation, video work, as well as music technology education. Festival performances include the SPARK festival in Minneapolis, the Enaction in Arts conference in Grenoble, the International Society for Improvised Music conference, the NWEAMO festival, the Extensible Electric Guitar Festival, various NIME conferences, and the ICMC / Ear to the Earth conference.

Jeremy Crosmer is a gifted young professional cellist and composer. After achieving a double-major in music and mathematics from Hendrix College, he went on to receive multiple graduate degrees from the University of Michigan by the age of 23. As a cellist, Crosmer has performed across the country, soloing with orchestras in Arkansas and attending music festivals from Music Academy of the West to Tanglewood Music Center. An avid promoter of new music, Crosmer has both commissioned and premiered dozens of works by composers at Michigan and elsewhere. His performance dissertation at the University of Michigan is a study of the music of Paul Hindemith and cello sonatas by French composers during World War I.

Performer, educator, scholar and entrepreneur, **Rebecca Danard** holds a doctorate in clarinet performance at the University of Cincinnati College-Conservatory of Music. Also an enthusiastic teacher, Rebecca is Adjunct Faculty at Carleton University. She is currently Artistic Director of the Ottawa New Music Creators: a collective of professional composers and performers dedicated to bringing contemporary music to Canada's capital. Rebecca's performance career centres on new and experimental music, including interdisciplinary collaborations, working with new technology, organizing events, and commissioning composers. She has worked with film makers, dancers, choreographers, actors, poets, lighting designers and visual artists as well as performing musicians and composers. She has been invited to perform at festival such as Music10 (Hindemith Centre, Switzerland), the Ottawa Chamber Music Festival, the Ottawa Jazz Festival, the Bang on a Can Summer Festival, and Opera Theatre and Music Festival of Lucca; at conferences such as Clarinetfest, CLIEC and SEAMUS.

Clare Cullen is a sound artist, experimental musician and researcher interested in developing interactive systems for music performance. She has an MSc in Digital Composition and Performance from the University of Edinburgh and is currently studying towards a PhD in Media and Arts Technology at Queen Mary University, London.

Paul Cox is a scholar, composer and percussionist in Cleveland, Ohio. He currently teaches music history and percussion at Case Western Reserve University (CWRU) and the Oberlin Conservatory of Music, where he is a Visiting Assistant Professor. He earned a PhD in musicology from CWRU in 2011 after the completion of his dissertation, *Collaged Codes: John Cage's Credo in Us, a study of Cage and Merce Cunningham's first dance collaboration in 1942*. Current projects include composing *Just.Are.Same* for string quartet, oboe and tape, which weaves together an electronic soundscape of spoken

words drawn from victims of genocide with acoustic and electronic sounds; composing an evening-length work for the ensemble NO EXIT, in collaboration with famed world percussionist Jamie Haddad and guitarist Bobby Ferrazza; curating a Cage “Musicircus” for the opening of the new Museum of Contemporary Art in Cleveland, and artistically advising the Sitka Fest in Alaska, a three-month-long festival of arts and culture.

Palle Dahlstedt (b.1971), composer, improviser, pianist and researcher from Stockholm, since 1994 living in Göteborg, Sweden. With composition degrees from the Academies of Malmö and Göteborg and a PhD from Chalmers University of Technology in evolutionary algorithms for composition, he is currently the main lecturer in electronic music composition at the Academy of Music and Drama, University of Gothenburg, and artistic director the Lindblad Studios. Also, he is associate professor in computer-aided creativity at the Department of Applied IT, performing extensive research in novel technology-based performance and improvisation techniques for electronic and acoustic musicians, and in computer models of artistic creative processes. His music has been performed on six continents and received several awards, e.g., in 2001 he was awarded the prestigious Gaudeamus Prize, as the first ever for an electronic work. He is also performing on piano with and without electronics, and in the electronic free impro duo pantoMorf.



Nicolas d’Alessandro obtained his PhD in Applied Sciences from the University of Mons in 2009. From a lifelong interest in musical instruments and his acquired taste in speech and singing processing, he will incrementally shape a research topic that aims at using gestural control of sound in order to gain insights in speech and singing production. He works with Prof. T. Dutoit for a PhD at the University of Mons between 2004 and 2009. Late 2009, he moves to Canada, to take a postdoc position with Prof. S. Fels at the MAGIC Lab, University of British Columbia, where he will work on the DiVA project. There he will also organize the first p3s workshop. Since December 2011, he is back in the University of Mons and leads the MAGE project. Nicolas is also an active electroacoustic performer in and around Belgium, playing guitar and invented instruments in various performances.

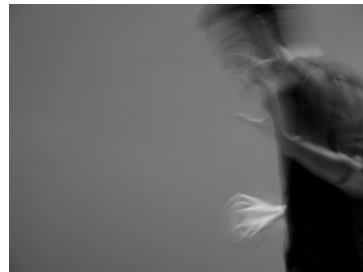
Tom Davis is a digital artist working mainly in the medium of sound installation. His practice and theory based output involves the creation of technology-led environments for interaction. He performs regularly as part of JDTJDJ with Jason Dixon and as part of the Jackson4s. He has performed and exhibited across Europe and in the US. Davis is currently a lecturer at the University of Bournemouth and holds a PhD from the Sonic Arts Research Centre, Belfast. <http://www.tdavis.co.uk/>

Scott Deal has premiered solo, chamber and mixed media works throughout North America Europe, and Asia. An artist who “displays phenomenal virtuosity” (Artsfuse) and presents a “riveting performance” (Sequenza 21), his recording of John Luther Adams’s *Four Thousand Holes*, for piano, percussion, and electronics was listed in New Yorker Magazine’s 2011 Top Ten Classical Recordings. In 2011, he and composer Matthew Burtner were awarded the Internet2 IDEA Award for their co-creation of *Auksalaq*, a telematic opera. Deal is Professor of Music and Director of the Donald Louis Tavel Arts and Technology Research Center at Indiana University Purdue University Indianapolis (IUPUI). He is the founder and director of the Telematic Collective, a multi-disciplinary artistic research group comprised of graduate students and professional collaborators. He also serves on the faculty for the Summer Institute for Contemporary Performance Practice at the New England Conservatory.



Johann Diedrick A writer and a musician, Johann Diedrick studied Sociology of Culture at the University of Pennsylvania. He is interested in using technology to reconsider musical performance and the experience of listening.

New media and sonic artist, performer and teacher, **Marco Donnarumma** was born in Italy and is based in Edinburgh, UK. Weaving a thread around biomedica research, musical and theatrical performance, participatory practices and subversive coding, Marco looks at the collision of critical creativity with humanized technologies. He has performed and spoken in 28 countries worldwide at leading art events, specialized festivals and academic conferences. Has been artist in residence at Inspace (UK)

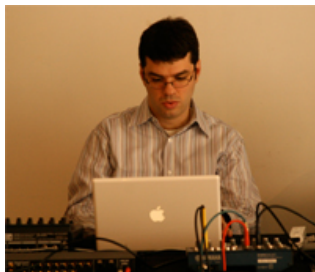


and the National School of Theatre and Contemporary Dance (DK). His work has

been funded by the European Commission, Creative Scotland and the Danish Arts Council. In February 2012 Marco was awarded the first prize in the Margaret Guthman Musical Instrument Competition (Georgia Tech Center for Music Technology, US) for the Xth Sense, a novel, biophysical interactive system named the “world’s most innovative new musical instrument”.

R. Luke DuBois is a composer, artist, and performer who explores the temporal, verbal, and visual structures of cultural and personal ephemera. He has collaborated on interactive performance, installation, and music production work with many artists and organizations including Toni Dove, Matthew Ritchie, Todd Reynolds, Jamie Jewett, Bora Yoon, Michael Joaquin Grey, Elliott Sharp, Michael Gordon, Maya Lin, Bang on a Can, Engine27, Harvestworks, and LEMUR, and was the director of the Princeton Laptop Orchestra for its 2007 season. Stemming from his investigations of “time-lapse phonography,” his recent work is a sonic and encyclopedic relative to time-lapse photography. Just as a long camera exposure fuses motion into a single image, his work reveals the average sonority, visual language, and vocabulary in music, film, text, or cultural information. He teaches at the Brooklyn Experimental Media Center at the Polytechnic Institute of NYU, and is on the Board of Directors of Issue Project Room.

Michael Drews is a composer, sound artist and computer musician. His work explores unconventional narrative strategies created from transforming contextual identity and the expressive power of cultural artifacts found in particular sonic and visual materials. Present throughout Drews’s work is an interest in performance-based computer virtuosity and improvisational applications of computer technology that expand traditional ideas of musical performance and creativity. Drews is a



member of computer-acoustic ensemble, Big Robot and the experimental-electronica duo, Mana2. Performances of Drews’s compositions have been featured at SEAMUS, Cinesonika, Electronic Music Midwest, NYC Electronic Music Festival, Studio 300, PASIC, Super Computing Global and IASPM-Canada. Drews holds degrees from the University of Illinois at Urbana-Champaign (D.M.A.), Cleveland State University (M.MUS.) and Kent State University (B.A.). He resides with his family in Indianapolis and is Assistant Professor of Music at Indiana University-Indianapolis (IUPUI). For more information: michaeldrews.org or [Twitter.com/MICHAEL -DREWS](https://twitter.com/MICHAEL-DREWS)

Alexander Dupuis develops real-time audiovisual feedback systems mediated by performers, sensors, musicians, matrices, bodies, scores, games, and environments. He also composes, arranges and performs sounds for guitars, liturgies, chamber groups, horse duos, microwave cookbooks, and celebrity voices. He graduated from Brown University's MEME program as an undergraduate in 2010, and is now in his second year of the Digital Music masters program at Dartmouth College.



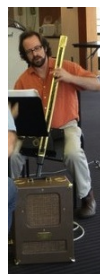
Matt Endahl (b. 1985) is an improvising pianist based in Ann Arbor, MI. A student of Geri Allen and Ed Sarath at the University of Michigan, Matt is an active performer and organizer, having performed in a wide variety of settings, from Gershwin's "Rhapsody in Blue" to freeform solo electronic sets. Matt has taught jazz piano at Hillsdale College since 2008. <http://www.myspace.com/mattendahl>

Jenn Figg is an artist investigating the connections between industry, science and art through the transformation of energy, performative objects and constructed ecosystems. She graduated with a BFA in Textiles from the Rhode Island School of Design and an MFA from the University of California at Santa Barbara. She is pursuing her Ph.D. in Media, Art, and Text at Virginia Commonwealth University. She lives in Baltimore and is an Assistant Professor of Art at Towson University in Maryland. Exhibitions include The Print Center in Philadelphia, Pennsylvania, The Art House at the Jones Center in Austin, Texas, Virginia MOCA in Virginia Beach, Virginia, the Columbus Center of Science and Industry in Columbus, Ohio, the Ingenuity Festival in Cleveland, Ohio. Other awards and residencies include the MacDowell Colony, the Lower Manhattan Cultural Council Residency, the Great Lakes College Association New Directions Initiative, and the University of California Interdisciplinary Humanities Center, Visual, Performing & Media Arts Award.

Emmanuel Elias Flores is a media designer and software artist based in the Netherlands. He studied music and cinema in Mexico and Sonology at the Royal Conservatory in The Hague (NL). His work is centered around the idea of exploring different types of cinematic experiences and the enhancement of new narrative forms which bridge technology, art and perception. His work has been presented on a wide range of formats: from audiovisual pieces for electronic music, opera, dance and live cinema sets, to the design of public installations and interactive applications for mobile devices. In parallel to his creative activities he has worked as a developer and IT/video consultant for different commercial and art enterprises and as a programmer for portable devices. www.emmanuelflores.net

Alexandre R.J. François's research focuses on the modeling and design of interactive (software) systems, as an enabling step towards the understanding of perception and cognition. He was a 2007-2008 Fellow of the Radcliffe Institute for Advanced Study at Harvard University, where he co-led a music research cluster on Analytical Listening Through Interactive Visualization. François received the Diplôme d'Ingénieur from the Institut National Agronomique Paris-Grignon in 1993, the Diplôme d'Etudes Approfondies (M.S.) from the University Paris IX - Dauphine in 1994, and the M.S. and Ph.D. degrees in Computer Science from the University of Southern California in 1997 and 2000 respectively.

Jonathan Golove, Associate Professor of Music at the University at Buffalo, has been featured as theremin cello soloist with the Asko/Schoenberg Ensemble, London Sinfonietta, and International Contemporary Ensemble; and as cello soloist with the Buffalo Philharmonic Orchestra, Slee Sinfonietta, and New York Virtuoso Singers. He has recorded for the Albany, Centaur, Al-buzerque, and Nine Winds labels, and appeared at festivals including the Holland Festival, Festival d'Automne, Lincoln Center Festival, June in Buffalo, and the Festival del Centro Histórico (Mexico City). Golove gave the first performance of Varese's *Ecu-atorial* using Floyd Engel's recreation of the legendary early 20th century instrument at the University at Buffalo in 2002. He is also active as an electric cellist, particularly in the field of creative improvised music. An accomplished composer, his works have been performed at venues including the Kennedy Center, Venice Biennale, Festival of Aix-en-Provence, Lincoln Center Chamber Music Society II, and the Kitchen.



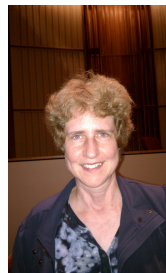
Saxophonist **Daniel Graser** is emerging as one of the most innovative performers and pedagogues of his generation. A recent recipient of the Doctorate of Musical Arts from the University of Michigan, Dan served as Teaching Assistant to legendary saxophone pedagogue Donald Sinta for the past three years and joined the faculty of Oakland University School of Music, Theater, and Dance in 2011. Previously, Dan earned a Masters Degree from the University of Michigan in 2008 and Bachelors degrees in music theory/history and saxophone performance as a student of Dr. Timothy McAllister at the Crane School of Music in 2007. As an orchestral performer, Dan has performed as principal saxophonist with the National Wind Ensemble in Carnegie Hall under H. Robert Reynolds, the Detroit Symphony Orchestra under Leonard Slatkin, The New World Symphony under Michael Tilson Thomas and John Adams, the Ann Arbor Symphony under Arie Lipsky, the University of Michigan Symphony Orchestra under Kenneth Kiesler, the Hot Springs Festival Orchestra under Richard Rosenberg, and the Orchestra of Northern New York under Kenneth Andrews. Dan was selected by the University of Michigan to be featured as a recitalist at the Kennedy Center for the Performing Arts in Washington DC as part of the Millennium Stage Series. Recent and forthcoming performances include world premieres at

the University of Michigan, orchestral performances with the New World Symphony and the Detroit Symphony Orchestra as well as chamber music performances at the Navy Band International Saxophone Symposium and the 2012 North American Saxophone Association Biennial Conference

Bryan Kip Haaheim joined the faculty at KU in 2001 as an assistant professor of Music Composition. He currently teaches Composition, Electronic Music, and Music Theory. Kip Received his D.M.A degree from the University of Arizona in 1999 after studying with Daniel Asia. He completed his Masters degree at the University of Minnesota under Alex Lubet, Dominick Argento, and Judith Zaimont. In addition to more traditional chamber music Kip has an extensive portfolio of Electronic Music which features works for digital audio and performer, interactive multi-media installations, interactive websites, live web performance, and works for video and film. The collaborative work "Sacred and Profane" with Daniel Asia (Summitt Records) was one of the first surround-sound audio DVDs in the United States. Kip's works have received recent performances in New York City; Chicago; Detroit; Los Angeles; Houston; Eugene; San Francisco; Toronto, Canada, Tel Aviv, Israel; Paris, France; and Lübeck, Germany.

Samuel Haese is a student of music and physics at Case Western Reserve University (CWRU) in Cleveland, OH. He has studied concert percussion with Matthew Bassett, Feza Zweifel, and Matthew Larson, and currently collaborates with Paul Cox in exploring and performing modern percussion music. In the meantime, Sam is receiving a BA in Music for studying piano with Gerardo Teissonniere through the Cleveland Institute of Music. Sam intends to also receive a degree in Engineering Physics from CWRU which he hopes will allow him to explore and understand music technologies. Originally from Berkeley, California, his current plans include moving to a sunnier place than Cleveland after graduation within the next two years.

Mara Helmuth composes music often involving the computer, and creates multimedia and software for composition and improvisation. Her recordings include *Sounding Out!* (Everglade, forthcoming 2010), *Sound Collaborations*, (CDCM v.36, Centaur CRC 2903), *Implementations of Actuation* (Electronic Music Foundation EMF 023), and *Open Space CD 16*, and her work has been performed internationally. She is on the faculty of the College-Conservatory of Music, University of Cincinnati and its Center for Computer Music's director. She holds a D.M.A. from Columbia University, and earlier degrees from the University of Illinois, Urbana-Champaign. Her software for composition and improvisation has involved granular synthesis, Internet2, and RTcmix instruments. Her writings have ap-



peared in *Audible Traces, Analytical Methods of Electroacoustic Music, the Journal of New Music Research and Perspectives of New Music*. Installations including *Hidden Mountain* (2007) were created for the Sino-Nordic Arts Space in Beijing. She is a past president of the International Computer Music Association.

Ryan Hilty is a percussionist earning a degree in Music Education from the Case Western Reserve University School of Music in Cleveland, Ohio. He is currently in his second undergraduate year, studying percussion with Matthew Larson. He has performed as a percussionist in numerous ensembles, including the Crestwood Wind Ensemble, Jazz Band, and the Cleveland Youth Wind Symphony. He is the recipient of the 2010 John Phillip Sousa Award. After earning his degree in music education, Ryan aspires to become a high school band director.

Luisa Pereira Hors holds a degree in Systems Engineering from Universidad ORT Uruguay. Combining her background as a developer, interaction designer and musician, her work uses technology to explore the ground between composition (non-interactive) and musical instrument (fully interactive).

Bill Hsu is an Associate Professor of Computer Science at San Francisco State University. He has performed in the US, Asia, and Europe, including NIME 2011 (Oslo), Festival art::archive:architectures (ZKM, Karlsruhe, 2011), SMC 2009 (Porto), Harvestworks Festival 2009 (New York), Fete Quaqua 2008 (London), MIX Festival 2007 and 2009 (New York), NIME 2007 (New York), Stimme+ 2006 (ZKM, Karlsruhe), and the First Hong Kong Improvised Performance Festival 2005.

Website: <http://userwww.sfsu.edu/~whsu/art.html> **Nick Hwang** is a composer and sonic artist whose latest pursuits have involved interactive installations, sound art, and interactive environments. His output has been seen at ICMC, SEAMUS, ISIM, Symposium for Laptop Ensembles and Orchestras, and Pixilerations. Nick is currently a Ph.D. candidate in Music Composition, Experimental Music and Digital Media at Louisiana State University.

Tomoyuki Kato is a renowned Japanese visual artist/movie director who works in a wide range of high-tech projects including advertisements, commercials, museums exhibitions and theme-parks. Kato's work is known for the superb quality, high impact, originality and new technical methods. Recently, Kato has been active in creating corporate future vision, such as "concept car," incorporating live action, computer graphics and animation on project bases; his recent exhibition includes 2010 Shanghai Expo. His highly acclaimed "Grand Odyssey," created for 2005 Aichi Expo's Toshiba/Mitsui pavilion, is now displayed at Nagasaki's Huistenbosch theme-park. In 2010, Kato created "Better Life from Japan," an exhibit for Otsuka Pharmaceutical company at Shanghai Expo, using a 360-degree display. Kato has received and nominated for numerous awards at international and national festivals, including Japan Ministry of Culture Media Arts Festival, Los Angeles International Short Film Festival, Montreal International Film Festival and London International Advertising Festival.

As a composer, programmer, and DJ, **Thor Kell** likes combining interesting things in unique ways. A recent graduate of the University of Victoria's Music / Computer Science program, he will begin his MA at McGill University in the fall, focusing on interactions between performer, interface, and software. While at UVic, he received a Jamie Cassels Undergraduate Research Award: his research involved prototyping and composing for a gestural control mapping system for extending the marimba. His traditional compositions are all clockwork riffs and hidden structures, based on mathematical constants or time-stretched quotes from the English folk music canon: he has written for everything from full orchestra to solo piano. He has programmed for The Echo Nest and SoundCloud. In his secret life as a DJ and techno maven, he has released chart-toppers on Kompakt, impossibly deep jams on Fade, and hour-long remix / video symphonies on his own label, Tide Pool.

Mike Khoury was born in Mt. Pleasant, Michigan in 1969. As the son of visual artist Sari Khoury, he was exposed to various forms of visual arts and creative musical forms. Khoury is Palestinian. Khoury's collaborators often include Leyya Tawil (dance), Ben Hall (percussion), Christopher Riggs (guitar), and Andrew Coltrane (sound manipulation). He has performed and recorded with Faruq Z. Bey, Dennis Gonzalez, Luc Houtkamp, Maury Coles, Jack Wright, Graveyards, John Butcher, Gino Robair, Gunda Gottschalk, and Le Quan Ninh. Khoury runs the Entropy Stereo music label where he focuses on issuing new and archival music by challenging artists. His studies include those with John Lindberg, Gerald Cleaver, and composer/violinist David Litven. Khoury is the author of a chapter on Egyptian-American composer Halim El-Dabh in a forthcoming anthology on the Arab avant garde, published by Wesleyan University Press. Website: <http://www.myspace.com/michaelkhoury>

Bongjun Kim (b. 1981, Seoul, Korea) is a Masters student at Korea Advanced Institute of Science and Technology (KAIST) and a member of the Audio and Interactive Media (AIM) Lab at the Graduate School of Culture Technology (GSCT), KAIST. Kim has received his B.S. and M.S. degrees in Industrial and Information Systems Engineering from Ajou University, and he has also worked at Doosan Infracore as an R&D researcher. He is also a composer, performer, and system developer of the KAIST Mobile Phone Orchestra (KAMPO), where he has designed interactive mobile music performance system and composed the piece "Where Are You Standing?" which features digital compass-based interaction. Currently his research interests are algorithmic composition, music informatics, machine improvisation, and mobile media as a new musical interface.

Seunghun Kim is a Ph.D. candidate at KAIST and is a member of Audio and Interactive Media (AIM) Lab in the Graduate School of Culture Technology (GSCT). He has received the B.S degree in electrical and communications engineering from Information and Communications University (ICU). He wrote his Master thesis on sound synthesis of the geomungo (a traditional Korean stringed instrument) at KAIST. He

has presented several papers on musical interfaces at domestic/international conferences including the international conference on new interfaces for musical expression (NIME) and the international computer music conference (ICMC). In addition, he has participated in the development of interactive installations, which were exhibited at Incheon International Digital Art Festival (INDAF), KT&G SangSang Madang, Gwangju Design Biennale, and Seoul Digital Media Content International Festival. He is also a member of the KAIST Mobile Phone Orchestra (KAMPO).

Violinist/composer **Mari Kimura** is widely admired as the inventor of “Subharmonics” and her works for interactive computer music. As a composer, Mari’s commissions include the International Computer Music Association, Harvestworks, Music from Japan, and received grants including NYFA, Arts International, Meet The Composer, Japan Foundation, Argosy Foundation, and NYSCA. In 2010 Mari won the Guggenheim Fellowship in Composition, and invited as Composer-in-Residence at IRCAM in Paris. In October 2011, the Cassatt String Quartet premiered Mari’s “*I-Quadrifoglio*”, her string quartet with interactive computer at the Symphony Space in NYC, commissioned through Fromm Commission Award. Feature articles in the past year include: the New York Times (May 13th, written by Matthew Gurewitsch), and Scientific American (May 31st, written by Larry Greenemeier). Mari’s CD, *The World Below G and Beyond*, features her Subharmonics works and interactive computer music. Mari teaches a course in Interactive Computer Performance at Juilliard. <http://www.marikimura.com>

R. Benjamin Knapp is the founding director of the Institute for Creativity, Arts, and Technology at Virginia Tech, where he is Professor of Computer Science. Ben has led the Music, Sensors and Emotion (MuSE) group, whose research focuses on the understanding and measurement of the physical gestures and emotional states of musical performers and their audience. For over 20 years, Ben has been researching and developing user-interfaces and software that enable composers and performers to augment the physical control of a musical instrument with more direct neural interaction. From the invention of the Biomuse with Hugh Lusted in 1987 to the introduction of the concept of an Integral Music Controller (a generic class of controllers that use the direct measurement of motion and emotion to augment traditional methods of musical instrument control) in 2005, Ben has focused on creating a user-aware interface based on the acquisition and real-time analysis of biometric signals.

Alison Kotin Alison’s work explores the interplay of performance and digital media through motion- and touch-activated digital artworks that invite play, creation, and audience participation. Alison is an adjunct professor of Graphic Design at MassArt and the School of the Museum of Fine Arts, Boston. She is also a media arts instructor and Programs + Outreach Coordinator at the Urbano Project, a non-profit studio and gallery space dedicated to fostering artistic partnerships between urban teens and adult artists. She exhibits works in venues around the Boston Area, most recently the 2011 Boston CyberArts Festival and a 2012 solo show: Listen Close at Boston’s

Bromfield Gallery. Her writing has appeared in the *Teaching Artists' Journal* and the *Youth Media Reporter*, as well as *The Experience of Dynamic Media*. Alison holds an MFA from the Dynamic Media Institute at MassArt, and a BA from Brown University ('00) in English Literature.

A regular performer in southeast Michigan, **Veena Kulkarni** teaches at the Faber Piano Institute and Madonna University. Veena's performances have taken her throughout the United States and beyond as both a soloist and collaborator. In October, Veena won Best Liszt Interpretation in the 2011 Liszt-Garrison International Piano Competition. Veena is the pianist for Eero Trio, whose debut CD entitled *Wolf Glen* was released in 2010. *Wolf Glen* features the premiere recording of Christopher Dietz's *Fumeux fume*, for clarinet, cello & piano. Veena completed her doctorate in Piano Performance and Pedagogy under Logan Skelton and John Ellis at the University of Michigan. Prior to that, she studied at Indiana University with Emile Naoumoff and Professors Brancart, Auer, Gulli and Tocco and at the Royal Academy of Music with Hamish Milne.

Colin Labadie is a composer and performer currently based in Edmonton, Alberta. His musical output ranges from solo, chamber, choral, orchestral, and electroacoustic compositions, to sound installations, multimedia collaboration, experimental improvisation, and noise music. His work is shaped by a broad range of musical influences, at times dealing exclusively with repetition, patterns, and subtle variation, while at others exploring chaos and unpredictability. Colin holds a BMus from



Wilfrid Laurier University, where he studied with Linda Catlin Smith and Peter Hatch, and an MMus from the University of Alberta where he studied with Howard Bashaw, Mark Hannesson, Scott Smallwood, and Andriy Talpash. Currently, he is pursuing a Doctoral degree in Composition from the University of Alberta under the supervision of Scott Smallwood. He is the recipient of SSHRC's Joseph-Armand Bombardier Master's and Doctoral Scholarships, the University of Alberta Master's and Doctoral Recruitment Scholarships, and the President's Doctoral Prize of Distinction.

Jeong-seob Lee is a Ph.D. student at the Graduate School of Culture Technology (GSCT), KAIST, Korea, and a research member of Audio & Interactive Media Lab. He received his M.S. degree from the same institute, and his undergraduate degree in mechanical engineering from Seoul National University. As an amateur dancer and choreographer, he is interested in various performances involving dance. His experi-

ences on stage and in engineering lead him to conduct research in interactive performance paradigm and multimedia interface technology. He has produced a number of new media performances through collaborations with dancers and musicians, and worked as an audiovisual interaction designer. He is also interested in acoustic motion detection with off-the-shelf audio devices.

Hans Leeuw is recognized as one of Hollands top players composers and bandleaders in the Jazz and improvised music scene even before he started to use electronics and designed his own Electrumpet. He is most noted as the bandleader of the Dutch formation Tetzepi, a 14 piece Big Band. Tetzepi exists for 15 years and is structurally funded by Dutch government. Next to his activities as a performer Hans teaches at the Utrecht school for the arts at the Music Technology department and at the faculty Industrial Design of the Technical University Eindhoven where he coaches projects on the design of new musical instruments. In 2008 he designed the Electrumpet, a hybrid electroacoustic instrument that differs from similar design in that it takes the trumpet players normal playing position and expression in account thus creating an instrument that combines acoustic and electronic expression seamlessly. (see 'the electrumpet, additions and revisions')

Nolan Lem (b. 1986 Kansas City, MO) is an instrumentalist and composer whose work reflects a broad range of influences and mediums. His music has been performed all over the United States and abroad including festivals in Norway, Italy, Switzerland and Finland. As a saxophonist, he has performed at the Lincoln Center, Dizzy's Coca Cola Jazz Club and the Highline Ball room in New York City. He has been the recipient of several grants for installations involving the University of Kansas and the Spencer Art Museum. He has studied at the Sibelius Academy, Eastman School, the University of Kansas and holds a degree from the University of Miami (FL). He currently resides in Lawrence, KS where he is pursuing a degree in electrical engineering at the University of Kansas.

Esther Lemi has been acknowledged for her audio/ visual works and performances, and remains active in total-art work projects in the field of art and the perception of reality. Her projects have been presented at the 3rd Athens Biennial, Kubus ZKM Karlsruhe, Athens Music Hall, 11th and 12th BjCEM Association Biennale des Jeunes Créateurs Europe (as both music-composer and visual artist), and she has participated in the theatrical Scene of Berlin as member of Ilona Zarypow's "Talking Bodies" performance group. Having studied at Athens University (Ph.D), Institute for Computer Music and Sound Technology, ZHdK (CAS in Computer-Music), Institute for Art in Context UdK Berlin (Master of Arts), University of Arts in Athens, Athens Conservatory and Patras Music School (Diploma in Painting, Music-Composition and Piano). Aura is her currently research Project in ICST, Zurich.

Levy Lorenzo is an electronics engineer and percussionist living in New York. Specializing in microcontroller-based, he performs experimental, live-electronic & acoustic music using new, custom electronic musical instruments and percussion. His work has been featured at STEIM in Amsterdam (NL), the Darmstadt School for New Music (DE) and the International Ensemble Moderne Academy (AU). Currently, Levy is a Live Sound Engineer for the International Contemporary Ensemble and Issue Project Room (Brooklyn, NY). Levy holds B.S. and M.Eng. degrees in Electrical & Computer Engineering from Cornell University as well as an M.M. degree in Percussion Performance from Stony Brook University, where he is currently a D.M.A. candidate. [www.levylorenzo.com]



Eric Lyon is a composer and computer music researcher. During the 1980s and 1990s, his fixed media computer music focused on spectral and algorithmic processing of audio, with a tendency toward extreme modifications of samples, variously sourced. From the early 1990s, Lyon became involved with live computer music, performing solo, and in the Japanese band Psychedelic Bumpo, with the Kyma system. Later in the 1990s, he gravitated toward software-based live processing, starting to develop Max/MSP externals in 1999. This work resulted in his LyonPotpourri collection of Max/MSP externals, and the FFTease spectral package, developed in collaboration with Christopher Penrose. In recent years, Lyon has focused on computer chamber music, which integrates live, iterative DSP strategies into the creation of traditionally notated instrumental scores. Other interests include spatial orchestration, and articulated noise composition. Lyon teaches computer music in the School of Music and Sonic Art at Queen's University Belfast.

Thessia Machado, Brazil/NY, investigates the physicality of sound and its effect on our perception of space. Many of her recent sculptures and installations function also as unorthodox instruments—pieces that have a real-time, live component. The expressive potential is active and changeable as the viewer interacts and performs with it. Thessia's installations and video pieces have been exhibited in New York, London, Philadelphia, Paris, Amsterdam, Dublin, Berlin and Athens. She has been awarded residencies at the MacDowell Colony, Yaddo, the Atlantic Center for the Arts, the Irish Museum of Modern Art and the Vermont Studio Center and she is a recipient of fellowships from the New York Foundation for the Arts, The Experimental Television Center and The Bronx Museum. Performing as link, Thessia Machado, a self-avowed noisician, employs a changing line-up of handmade, found and modified instruments to build driving, meditative soundscapes.

Martin Marier is a composer and a performer who is mainly interested in live electronic music using new interfaces. He is the inventor of the sponge, a cushion like musical interface that he uses to perform his pieces. The main goal of this approach is to establish a natural link between gesture and sound in electronic music. He aims at improving the interaction with the audience and at making the process of composing more playful. His research on the sponge is the topic of the doctorate he is pursuing at the Universit de Montral under the supervision of Prof. Jean Piché. He was also supervised by Dr. Garth Paine during an exchange at the University of Western Sydney (Australia) in 2011. Martin has also composed music for theatre, collaborating mostly with the Théâtre I.N.K. company for whom he wrote the music of three plays: "L'effet du temps sur Matévina" (2012), "Roche, papier... couteau" (2007), "La cadette" (2006). He sometimes writes music for films and collaborates with the film composer Benoit Charest. He is one of the founders of Point d'écoute (PDE), a collective whose purpose is to promote electroacoustic music. Along with his four colleagues of PDE, he produced concerts in Montreal, New York and Sydney.



Magnus Martensson is Music Director of The Scandinavian Chamber Orchestra of New York; between 1996 and 2007 he was Visiting Assistant Professor at SUNY Buffalo and conductor of the Slee Sinfonietta. In 1989, Martensson made his operatic debut in Malmö, Sweden, conducting a production of Offenbach's Orpheus in the Underworld, and has subsequently conducted operas by Mozart, Puccini, Golove, among others. He has conducted several world premiere recordings, including orchestral music by Jeffrey Stadelman, Roger Reynolds, and David Felder. In the past few seasons Martensson has guest conducted with the New York New Music Ensemble, the Trondheim Soloists, Musica Vitae, ICE, and at the Monday Evening Concert Series (Los Angeles), The Manhattan School of Music, and Teatro San Martin (Buenos Aires).

Matthew McCormack explores energy transformation and expression through technology, kinetic sculpture and blown glass. He graduated with a BFA in Glass from The Ohio State University and is now living in Baltimore, Maryland. He is pursuing an Interdisciplinary MFA at Towson University. His research interests include modifying a speaker transducer for optimum energy generation and developing a series of rapid prototyped Fresnel lens stamps for quartz crystal light instruments. His work has been featured at the Virginia Museum of Contemporary Art in Virginia Beach, Virginia, the Columbus Center of Science and Industry in Columbus, Ohio, the Toledo Museum of Art in Toledo, Ohio, the Rankin Art Gallery at Ferris State Univer-

sity in Big Rapids, Michigan, the National Museum of Glass in Eskisehir, Turkey, the Franklin Park Conservatory in Columbus, Ohio, the Ingenuity Festival in Cleveland, Ohio, and as part of the Lower Manhattan Cultural Council's Governors Island Residency in New York City.

Sonia Megias was born on June 20th 1982 in Almansa, a village at the southeast of Spain. Since she was a kid, she has been abducted by the arts, nature and spirituality. Even today, some years later, she tries to interweave these beautiful disciplines, with the goal of transmit to the world her perception of Beauty or True. Thanks to the intensity of her musical production, she finds herself living in New York since 2010, on the Fulbright and a NYU Steinhardt grants. Here, she combines her studies at the New York University with the compositions of her last commissioned pieces. Her music has been performed in different music halls and festivals, underlining the following: Auditorio 400 at the National Museum of Contemporary Art "Queen Sophia" (2012, 2008); Cervantes Institute of New York (2012, 2011); Houston University, at Opera Vista Festival (2011); Consulate of Argentina in New York, at a Tribute to Alfonsina Storni (2009); Embassy of France in Spain (2009); United Nations Headquarters (2008).

Born in Mexico City, **Roberto Morales-Manzanares** started his musical training in national folkloric music and learned how to play harps and different kinds of guitars and flutes from several regions of the country. His doctorate in music composition was completed at UC Berkeley in 2006. As a composer, he has written music for theater, dance, movies, TV and radio. As an interpreter Morales-Manzanares has participated on his own and with other composers in forums of jazz, popular and new music, including tours to Europe United States and Latin-America. As a researcher, he has been invited to different national and international conferences such as ICMC, International Joint Conference on Artificial Intelligence IJCAI and Symposium on Arts and Technology and has several publications. Currently he is member of the "Sistema Nacional de Creadores". His music can be found in ICMC recordings, Victo label www.victo.qc.ca (Leyendas in collaboration with Mari Kimura) and Irradia/Pocoscocodrilos.

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Evan Morgan completed his undergraduate studies in Biomedical Engineering at Imperial College London, in 2008. His Masters Research project was a collaborative study with the Royal College of Music, investigating the physiological aspects of performance anxiety in classically trained musicians. This research led him towards an interest in the ways in which live physiological data can be used in art, media and performance. In particular he is interested in utilising automated methods of detecting human emotion in order to study the dynamics of emotion within audiences. He is currently studying in the first year of the Media and Arts Technology Ph.D. programme at Queen Mary University, London.

Jordan Munson is a musician, composer, and multimedia artist. He is a Lecturer in Music and Arts Technology, and an associate of the Donald Louis Tavel Arts and Technology Research Center, both at Indiana University Purdue University Indianapolis (IUPUI). His works for multimedia and music have been premiered at institutions such as the University of Kentucky, the University of Alaska at Fairbanks and the University of California San Diego. As a video artist, he has shown work at New York City Electro-Acoustic Music Festival and SEAMUS. Munson's experimental electronic efforts have resulted in performances alongside artists such as Matmos, R. Luke DuBois and Bora Yoon. He is a member of the computer-acoustic ensemble Big Robot, in which he work focuses on live experimental percussion and electronics. Munson holds degrees from Indiana University in Indianapolis (M.S.M.T.) and the University of Kentucky (B.M.).

Alberto Novello a.k.a. JesterN studied piano and double bass at the Conservatory of Udine, graduated in Physics at the University of Trieste, he completed in 2004 the master "Art, Science and Technologies" at the Institut National Polytechnique of Grenoble, France, under the guidance of J.C. Risset, and C. Cadoz. He was teacher of electronic music composition at the Conservatory of Cuneo, Italy. From 2004 to 2009 he worked at the Philips Research, Eindhoven, Netherlands, in the field of Music Perception and Music Information Retrieval with several publications in international conferences and journals. In 2009 he received a PhD degree at the Technische Universiteit Eindhoven. He attended the Mater of Sonology under the guidance of Paul Berg, Joel Ryan, and Richard Barret. Since 2004 he produced several electronic audio visual pieces assisting among others Alvin Lucier, Trevor Wishart, and Butch Morris. His pieces can be found on his website: <http://dindisalvadi.free.fr/>.

Gabrielle Odowichuk is a graduate student in Electrical Engineering at the University of Victoria, working in the MISTIC research lab. A specialist in DSP and MIR, her research has focused on sound spatialization and gesture-based control of sound and music, developing a variety of prototypes, including Fantom Faders and Magic Eyes, the mallet tracking and gesture control applications used in this performance. For Møane Havn (mounhoun), she draws on previous experience in art direction and stage design to produce unique real-time gesture-controlled visualizations. She designed, built, and developed the interactive LED sculptures, Takete and Maluma, used in this piece, as well as the projections. Her work has been published by ICMC, IEEE, and NIME.

Gascia Ouzounian is a violinist, musicologist, and composer. She has performed with such varied ensembles as Yo-Yo Ma and the Silk Road Ensemble at Carnegie Hall, Bang On A Can All-Stars at the Mass MOCA, Sinfonia Toronto at the Toronto Centre for the Arts, and the Theatre of Eternal Music Strings Ensemble at the Dream House. Gascia's recent projects include two compositions that are intended for overnight listening: EDEN EDEN EDEN with filmmaker Chloe Griffin, and *Music for Sleeping & Waking Minds* with R. Benjamin Knapp, Eric Lyon and R. Luke DuBois. In

the latter, an ensemble of sleeping performers generates an audiovisual environment through their neurophysiological activity over the course of one night. Gascia teaches at Queen's University Belfast, where she leads the performance programme in the School of Creative Arts. Her writings on experimental music and sound art appear in numerous academic journals and the book *Paul DeMarinis: Buried in Noise*.

Keisuke Oyama, was born in Kumamoto, Japan on September 19, 1986. He plays various instruments freely in childhood. When he was 18, moved to Tokyo to study jazz theory. After starting his career as a jazz musician, he participated various sessions as a guitarist. Furthermore, his interest covered electro acoustic in the career. He was enrolled at Keio University Shonan Fujisawa Campus (SFC) to learn method and technique of computer music and media art in 2009. He is exploring the new expression of music.

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Eszter Ozsvald is a Hungarian designer, technologist and media artist based in New York. She studied Industrial Design Engineering and Mechatronics in Hungary, and joined Kitchen Budapest Media Lab in 2008 as a researcher. The following year, at the Estonian Center for Biorobotics, she developed a biologically inspired flexible robot fish. Eszter is currently enrolled in NYU's Interactive Telecommunications Program where continues to seek creative interdisciplinary applications with a technological edge.

Adam Parkinson is an electronic musician based in Newcastle, England. He has recently completed PhD, with much of his research looking at mobile music and performing with iPhones. He has worked alongside various improvisers such as Rhodri Davies, Klaus Filip, Robin Hayward and Dominic Lash, and has been involved in collaborations to create sound installations with Kaffe Matthews and Caroline Bergvall. He also dabbles in making dance music, and is trying to write a perfect pop song. Atau & Adam have been performing as a duo since 2008: first as a laptop / biomuse duo then in the current iPhone formation. 4-Hands iPhone has so far been performed across Europe and North America including the FutureEverything Festival (Manchester), Passos Manuel (Porto), Charm of Sound Festival (Helsinki), Electron Festival (Geneva), Mois Multi (Quebec), Music With A View (New York).

Kevin Patton is a musician, scholar, and technologist active in the fields of experimental music and multimedia theatre whose work explores the intersection of technology and performance. The design of new musical instruments as well as interfaces and computer systems for analysis, improvisation, installation and projection is at the center of his practice. His work has been recognized for his collaboration with visual artist Maria del Carmen Montoya with the 2009 Rhizome commission for the piece, *I Sky You*. Patton is an assistant professor of music and performance technologies at Oregon State University. He holds a Ph.D. and M.A. from Brown University in electronic music and multimedia composition. He also holds a Master of Music degree in jazz studies and composition from the University of North Texas. He was an Invited Researcher at the Sorbonne, University of Paris IV, for the Spring of 2009.



Amanda Sari Perez is a researcher with the Neural Engineering lab at the University of Michigan. She is currently working with microelectrode arrays to record brain activity from implanted sites. In 2009 she co-founded the Ann Arbor HackerSpace, a DIY community engaged in hands-on learning. For the past 3 years she has created artistic installations for the Burning Man festival, including a performance that deconstructs participants' notions of the self. Amanda is with the MiND Ensemble to work toward lowering the barrier for creative expression.

Anton Pugh is a Masters student in Electrical Engineering: Systems (Signal Processing concentration) at the University of Michigan. Presently he is working on expanding his knowledge of the Processing and iOS platforms, especially as they apply to the MiND Ensemble. His primary hobby is designing and building custom electronic instruments and new musical interfaces. He is also an active musician and plays viola in the Campus Symphony Orchestra.

Suby Raman is a composer, conductor, polyglot and linguist. His major artistic passion is drawn from language itself: the basic aural and mental components of language, how it determines, separates and unites cultures, and its influence (or lack thereof) on our perception and expression of reality. He has conducted research in brain-computer interface technology, which assist people afflicted by ALS and spinal cord injuries.

Sam L. Richards is a composer, artist, and researcher with a penchant for interdisciplinary collaboration and an appetite for creative engagement of unwieldy conceptual problems. As a composer he has worked with media artists, filmmakers, ani-

mators, and choreographers, as well as making music for the concert hall. Although formally trained as a musician, he also produces video installations, visual and aural media, creative writing, and regularly steps off the beaten path in order to engage new things in new ways.

Michael Rosen received his B.M. from the Oberlin Conservatory of Music, with a double major in Composition and Music Technology, and a Master's Degree at NYU's Interactive Telecommunications Program (ITP) at the Tisch School of the Arts. As an artist and composer, Michael attempts to draw simple connections to the complexity of our sound world.

Butch Rován is a media artist and performer at Brown University, where he co-directs MEME (Multimedia & Electronic Music Experiments @ Brown). Rován has received prizes from the Bourges International Electroacoustic Music Competition, the Berlin Transmediale International Media Arts Festival, and his work has appeared throughout Europe and the U.S. Most recently his interactive installation *Let us imagine a straight line* was featured in the 14th WRO International Media Art Biennale, Poland. Rován's research includes new sensor hardware design and wireless microcontroller systems. His research into gestural control and interactivity has been featured in IRCAM's journal *Resonance*, *Electronic Musician*, the *Computer Music Journal*, the Japanese magazine *SoundArts*, the CDROM *Trends in Gestural Control of Music* (IRCAM 2000), and in the book *Mapping Landscapes for Performance as Research: Scholarly Acts and Creative Cartographies* (Palgrave Macmillan, 2009).



Jan Schacher A doublebass-player, composer and digital artist, Jan Schacher (jan.schacher@zhdk.ch) is active in electronic and exploratory music, in jazz, contemporary music, performance and installation art as well as writing music for chamber-ensembles, theatre and film. His main focus is on works combining digital sound and images, abstract graphics and experimental video in the field of electro-acoustic music and in mixed-media projects for the stage and in installations.

Isaac Schankler is a Los Angeles-based composer-improviser. His recent honors include a grant from Meet the Composer for his opera *Light and Power*, selection as finalist in the ASCAP/SEAMUS Composition Competition, and the Damien Top Prize in the ASCAP/Lotte Lehmann Foundation Art Song Competition. He is the Artist in Residence of the Music Computation and Cognition Laboratory (MuCooCo) at the USC Viterbi School of Engineering, and an Artistic Director of the concert series *People Inside Electronics*. Isaac holds degrees in composition from the USC Thornton School of Music (DMA) and the University of Michigan (MM, BM).



Matthias Schneiderbanger (*1987) musician and sonic artist, studies since 2007 at the Karlsruhe University of Music, Germany. Currently master student in music informatics with emphasis in composition and sonic arts. Main focus on development of digital musical instruments, sound installations, contemporary music and live coding. Since 2010, there is also an artistic collaboration with M. Vierling in the development of digital musical instruments. Their instruments were presented 2011 at the Music and Sonic Arts Symposium in Baden-Baden, performances include the Network Music Festival in Birmingham and the ZKM in Karlsruhe. He is a member of the laptop ensemble *Benoît* and the *Mandelbrots*, performances along with numerous other concerts at the BEAM Festival in Uxbridge, the SuperCollider Symposium 2012 in London, the Laptops Meet Musicians Festival 2011 in Venice and the next-generation 4.0 Festival at the ZKM in Karlsruhe. He is a member of Karlsruhe artist collective *nil*.

Diemo Schwarz is a researcher and developer at Ircam, composer of electronic music, and musician on drums and laptop. He holds a PhD in computer science applied to music for his research on corpus-based concatenative musical sound synthesis. His compositions and live performances, under the name of his solo project *Mean Time Between Failure*, or improvising with musicians such as Frédéric Blondy, Victoria Johnson, Pierre Alexandre Tremblay, Etienne Brunet, Luka Juhart, George Lewis, Evan Parker, explore the possibilities of corpus-based concatenative synthesis to re-contextualise any sound source by rearranging sound units into a new musical framework using interactive navigation through a sound space, controlled by gestural input devices. His research work includes improving interaction between musician and computer, and exploiting large masses of sound for interactive real-time sound synthesis, collaborating with composers such as Philippe Manoury, Dai Fujikura, Stefano Gervasoni, Aaron Einbond, Sam Britton.

Paul Stapleton is a sound artist, improviser and writer originally from Southern California, currently based in Belfast, Northern Ireland. Paul designs and performs with a variety of modular metallic sound sculptures, custom made electronics, found objects and electric guitars in locations ranging from experimental music clubs in Berlin to remote beaches on Vancouver Island. He is currently involved in a diverse range of artistic collaborations including: performance duo ABODE with vocalist Caroline Pugh, interdisciplinary arts group theybreakinpieces, improvisation duo with saxophonist Simon Rose, Eric Lyon's Noise Quartet, and the DIY quartet E=MCHammer. Since 2007, Paul has been on the faculty at the Sonic Arts Research Centre where he teaches and supervises Master's and PhD research in performance technologies, interaction design and site-specific art. <http://soundcloud.com/paul-stapleton>



Eli Stine (born 1991 in Greenville, NC) is a composer, programmer, and sound designer currently pursuing a Double Degree at Oberlin College, studying Technology In Music And Related Arts and composition in the conservatory and Computer Science in the college. Winner of the undergraduate award from the Society for Electro-Acoustic Music in the United States (SEAMUS) in 2011, Eli has studied with Tom Lopez, Lewis Nielson, and Per Bloland at Oberlin, focusing on electroacoustic and acoustic music, as well as live performance with electronics. While at Oberlin Eli has performed with Oberlin's Contemporary Music Ensemble, had works played in concert by Oberlin's Society of Composers, inc. ensemble and student ensemble ACADEMY, and collaborated with students and faculty across disciplines on collaborative multimedia projects. More information about Eli's work can be found at www.oberlin.edu/student/estine/.



Michael Strau Saxophonist, composer, and improviser Michael Straus has firmly established himself as an important voice for contemporary and experimental music through his ongoing collaborations with visual artists, composers, robots, turntablists, conductors, dancers and instrumentalists around the world. He is founder of the multimedia performance project What are you looking at? and regularly performs with the chamber ensembles Moonrise Hernandez, quux, M2Duo, Portals of Distortion and EAR Duo. His recordings as a performer, composer and improviser can be heard on Innova, Everglade, EcoSono, Audition Records, SEAMUS, New Tertian and

The Walter's Art Museum record labels. Michael is the recipient of a 2010 American-Scandinavian Foundation Creative Arts Grant (Oslo) and 2008-2009 J. William Fulbright Fellowship (Amsterdam). He is currently a Ph.D. candidate in Experimental Music and Digital Media at Louisiana State University and holds M.M. degrees in saxophone performance and computer music from the Peabody Institute of The Johns Hopkins University.

Honza Svasek was born in 1954 in the Netherlands. After his studies he moved to Copenhagen where he became a graphic designer. Then he worked as computer professional and became a UNIX/Linux expert. In present he is a visual artist and performer. Honza started his research of Butoh 5 years ago. He studied with Butoh performers such as Itto Morita, Atsushi Takenouchi, Ken May, Yumiko Yoshioka, Yuko Ota, Imre Thormann. Currently he is studying with Rhizome Lee at the Himalaya Subbody Butoh School. <http://Honz.nl>

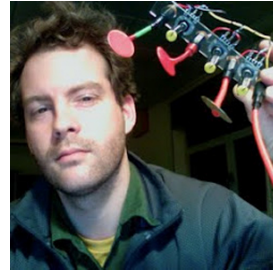
Koray Tahiroğlu is a musician, postdoctoral researcher and lecturer in the Department of Media, Aalto University. He practices art as a researcher focusing on embodied approaches to sonic interaction in participative music experience, as well as a performer of live electronic music. He conducted an artistic research with a focus on studying and practicing human musical interaction. Tahiroğlu has completed the degree of Doctor of Arts with the dissertation entitled "Interactive Performance Systems: Experimenting with Human Musical Interaction" after its public examination in 2008. He developed interactive performance systems and experimental musical instruments, which were used in his live performances. Since 2004, he has been also teaching workshops and courses introducing artistic strategies and methodologies for creating computational art works. Tahiroğlu has performed experimental music in collaboration as well as in solo performances in Europe and North America.



Atau Tanaka's first inspirations came upon meeting John Cage during his Norton Lectures at Harvard and would go on to re-create Cage's Variations VII with Matt Wand and *zoviet*france.*, performing it in Newcastle upon Tyne, Berlin, and Paris. In the 90's he formed Sensorband with Zbigniew Karkowski and Edwin van der Heide and then moved to Japan and came in contact with the noise music scene, playing with Merzbow, Otomo, KK Null and others. Atau has released solo, group, and compilation CD's on labels such as Sub Rosa, Bip-hop, Caipirinha Music, Touch/Ash, Sonoris, SIRR-ecords. His work has been presented at ICC in Japan, Ars Electronica, DEAF/V2, IRCAM, and Transmediale in Europe, and Eyebeam, Wood Street Gallery, and SFMOMA in the U.S. He has been artistic ambassador for Apple, researcher for

Sony CSL, artistic co-director of STEIM, and director of Culture Lab Newcastle. He is currently European Research Council (ERC) fellow at Goldsmiths Digital Studios in London.

Electro-acoustic percussionist, **Shawn Trail**, designs and builds new performance technologies for acoustic pitched percussion instruments integrating musical robotics, physical modeling synthesis, and HCI. He was Control Interface and Robotics Technician for Pat Metheny's Orchestra World Tour (2010), Fulbright Scholar at Medialogy- Aalborg University, Copenhagen researching DSP, synthesis, and HCI (2009), and composer-in-residence with League of Electronic Musical Urban Robots (2008). In 2002 he conducted field research in Ghana on the Gylil (traditional xylophone). He has a Master of Music in Studio Composition from Purchase Conservatory of Music and a BA in percussion performance and music technology. He is an Interdisciplinary PhD candidate in Computer Science, Electrical Engineering, and Music with MISTIC at the University of Victoria. Performing solo under the moniker TXTED, his multi-media performance works singularly revolve around minimal, textural evolving polyrhythmic, melodic ostinati propelled by a sense of urgency intrinsic to cultural music rituals informed by specific traditions.



Tristan Telander (b. 1984 Wichita, KS) is a University of Kansas Visual Communications graduate currently employed as the Graphic Designer with the Spencer Museum of Art where she develops print, environmental, and digital materials. Her award-winning work—ranging from annual reports to exterior building banners—enhances the Spencer's multifaceted environment. Recently, she has been a recipient of two American Association of Museums Publication Design Competition prizes and a grant from The Commons at the University of Kansas. After work, Tristan paints in acrylic and oil, illustrates and designs on a freelance basis, and shoots 35mm film when the light is right. Tristan's goal is to continuously grow while exploring the field of visual communication as it changes with technological advances with regard to the environment.

Pierre Alexandre Tremblay (Montréal, 1975) is a composer and a performer on bass guitar and sound processing devices, in solo and within the groups *ars circa musicæ* (Paris, France), *de type inconnu* (Montréal, Québec), and *Splice* (London, UK). His music is mainly released by *Empreintes DIGITALEs* and *Ora*. He is Reader in Composition and Improvisation at the University of Huddersfield (UK) where he also is Director of the Electronic Music Studios. He previously worked in popular music as producer and bassist, and is interested in video-music and coding. He likes oolong tea, reading, and walking. As a founding member of the no-tv collective, he does not own a working television set. www.pierrealexandretremblay.com



Yuta Uozumi is a sound artist and agent-based composer was born in the suburbs of Osaka, Japan. He started computer music at the age of fifteen. He received his Ph.D. from Keio University SFC Graduate School of Media and Governance. He is researching and teaching at Tokyo University of Technology. He is studying Multi-Agent based dynamic composition with computer or human ensembles. In 2002 His CD "meme?" was released from Cubicmusic Japan (under the name of SamuraiJazz). In 2003 agent-based musical interface "Chase" was accepted by NIME. It is a collaborative project by system-designer, DSP engineer and performer. In 2005 an application for agent-based composition "Gismo" and a piece created with the system "Chain" (early version) were accepted by ICMC (International Computer Music Conference).



Michael Vierling studies music informatics master at the Karlsruhe University of Music, Germany. He is drummer in several band projects and teaches a drumclass at School for Music and Performing Arts in Bühl, Germany. His main interests besides producing and performing music are sonic arts especially live- electronics, creating digital music instruments and sound installations with use of sensor technologies. Since 2010, there is an artistic collaboration with M. Schneiderbanger in the development of digital musical instruments. Their instruments were presented 2011 at the Music and Sonic Arts Symposium in Baden-Baden, performances include, the NIME 2012 in Michigan and the Network Music Festival 2012 in Birmingham. His works have been exhibited at various Festivals e.g. *ton:art* 2010/11, *UND 6/7*, *Sommerloch* 2011, *Beyond 3D-Festival* in Karlsruhe and the *Next Level Conference* in Cologne. He is a member of Karlsruhe artist collective *nil*.

Woon Seung Yeo is a bassist, media artist, and computer music researcher/educator. He is Assistant Professor at Korea Advanced Institute of Science and Technology (KAIST) and leads the Audio and Interactive Media (AIM) Lab and the KAIST Mobile Phone Orchestra (KAMPO). Yeo has received degrees from Seoul National University (B.S. and M.S. in Electrical Engineering), University of California at Santa Barbara (M.S. in Media Arts and Technology), and Stanford University (M.A. and Ph.D. in Music). His research interests include digital audio signal processing, musical acoustics, audiovisual art, cross-modal display, physical interaction for music, musical interfaces, mobile media for music, and innovative performance paradigm as well. Yeo has also curated/produced mobile music concerts, telematics music concerts, and multimedia installations and exhibitions.



Xuelian Yu was born and raised in China and earned her B.S. in engineering at Jiangnan University's Digital Media Technology program. She joined the Audio and Interactive Media (AIM) Lab at the Graduate School of Culture Technology (GSCT), KAIST in the Fall of 2010 to combine her problem-solving skills and creative abilities to set up worlds that people become characters in the environments and interact with their surroundings. Xuelian is currently in Pittsburgh to discover more experience in projects that produce artifacts that are intended to entertain, inspire or affect the participants, at Entertainment Technology Center of Carnegie Mellon University and she focuses on the research on the comparison of description on surround sound at the same time. The passion for learning and expanding her experiences has strengthened her goal to work in interactive design.

Eric Young is a student at Case Western Reserve University majoring in Computer Science and Audio Engineering. He grew up in Kansas City, Missouri. He plans on incorporating his interests into a career developing digital audio software. Eric has been studying general percussion performance since 2003 and specializes in jazz drums.