

OWEN VALLIS

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Interests

Live Performance For Electronic And Computer Music, Composition, Studio Production, Interface Design, Networked Music, Algorithmic Composition, Machine Learning, Reflexive Systems For Live Performance, Network Clock Systems For Computer Ensembles, Micro-controllers And Sensor Systems, Software Design For Computer Music And Real Time Graphics, Audio Engineering, Audio Mixing, Audio Mastering, Audio Electronics, Acoustics, Media Installation Works, Musical Robotics.

Professional Academic Background

Ph.D Candidate - New Zealand School Of Music, Victoria University (July 2009 - Current)

"Contemporary Approaches To Live Computer Music Empowered By Online Open Source Communities."

Principal Advisor: Ajay Kapur

B.F.A - California Institute Of The Arts (Sept 2005 - May 2008)

Music Technology Program, Graduated With High Honors CalArts, Valencia, California

Academic Awards

2010

Visiting Research Fellow In The School Of Informatics Sussex University

Faculty Research Grant From Victoria University, Wellington NZ

2009

Best Poster Award International Symposium On Music Information Retrieval

Faculty Research Grant From Victoria University, Wellington NZ

New Zealand International Doctoral Research Scholarship

Online Media

www.flipmu.com

www.vimeo.com/bricktable

Pedagogical Experience

California Institute Of The Arts: Music Technology

Professor Of Music Technology (Sept 2011 - Current)

Teaching Assistant (Sept 2008 - May 2009)

Lecture On Audio Compression (January 2008)

New Zealand School Of Music, Victoria University Wellington New Zealand

Special Project (July 2010 - November 2010)

Individual Student Project That Built A Semi-Modular SoftSynth And Multi-Touch Interface For Live Performance And Public Installation, Using Reaktor And Processing.

Teaching Assistant (July 2009 - Current)
Computer Programming For Musicians, Musical Human Computer Interaction / Interface Design

Musical Instruments And Robotics



The Chronome (2011) A new iteration of the Arduinome that provides both multi-color LEDs, and pressure sensitivity. A key goal of the interface was to use the Arduino microcontroller platform, while integrating with an existing interface framework known as the Monome. The Chronome's focus on continuous data allows for gestural forms of performance. The aim of this project is to provide all information to the Monome user community in hopes that it will spur a growth in applications that take advantage of this new functionality.



Tammy (2009) Ajay Kapur, Michael Darling, Jordan Hochenbaum, Jim Murphy, Jeff Lufkin, Steve Rusch, Charlie Burgin, and myself collaborated to design the robotic instrument called Tammy. I personally worked with Michael and Jordan on developing the robotic Marimba component of the instrument. This required the sourcing, cutting, and subsequent tuning of hardwood blocks, as well as the development of the solenoid actuator system. Tammy has been used in several concerts with the Machine Orchestra, including a performance at REDCAT in 2010.



The Arduinome (2008) The first open-source Arduino based port of the successful Monome interface designed and built with Jordan Hochenbaum. A NxN grid of buttons and LEDs. The interface's minimal design allows users define how they configure and perform with the device. To date, over 1000 of Arduinomes have been built by individuals all over the world.



The Bricktable (2008-2010) A large multi-touch surface designed and built with Jordan Hochenbaum. There have been three iterations of the interface, culminating in the current version which allows for travel on a plane while providing a 50" screen. The interface has been used in several different public installations, and as a pedagogical tool for teaching interface design to students.

Installations And Applications

Army Of Me (2012) Automatic Accompaniment VST. Current research into developing systems that create performer models that react to realtime external input. Such systems can be used to create multiple versions of a solo performer (extending what they can do with a single gesture), or can be used to create more complex mappings and interactions between visuals and music.

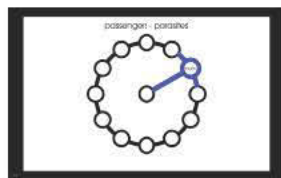
Signal (2012) Developed in collaboration with Dimitri Diakopoulos, signal is a multi protocol router for networked music ensembles. This application facilitates network communication between performers and robots, as well as provides a stabilized sync source.



NomeState (2011) Designed and built for the Chronome using JUCE in collaboration with Jordan Hochenbaum. Nomestate acts as a translator and graphical interface for the Chronome. The application converts between OSC and MIDI protocols, allows for individual button behavior to be set, and controls the color of each button. This application also implements a zeroconf C class that allows for discoverable OSC devices.



Chronome (2011) Custom Arduino Firmware for support of RGB and pressure sensitivity, as well as modified versions of Libnomome and SerialOSC to support the Chronome serial protocol and Atmega8u2 chips. See <http://github.com/owenvallis>



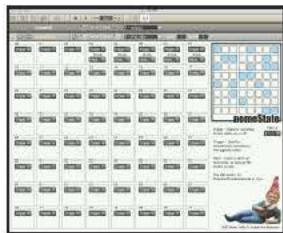
AhText! (2010) Designed and built for Ah! in collaboration with Jordan Hochenbaum, Jim Murphy, Dimitri Diakopoulos, and Ajay Kapur. AhText! played off of the idea of modular structure and words, random text starts by raining and emerging into pieces of the libretto, followed by a virtual mandala wheel representing different stories of the opera, allowing users to rearrange and sonify individual stories.



ExpGrain (2010) Designed and built in collaboration with Martijn Zwartjes, the ExpGrain is real time live input grain cloud engine based on 4-point interpolated delays. The various parameters are connected to allow for more “traditional” grain stretching and cloud sounds, as well as complex harmonies. The plug-in was designed to be performed live with random values for cloud generation, and a “reset” button to allow users to quickly return to stable parameter settings and re-sync the write and read heads.



DJEN (2009) Designed and built for ISMIR in collaboration with Dimitri Diakopoulos, Jordan Hochenbaum, Jim Murphy, and Ajay Kapur. A Self Organizing Map is used to automatically sort and group a library of 600 songs by similarities. Once sorted, users are able to navigate the library using a 2D color coded map, with basic colors corresponding to genre tags.



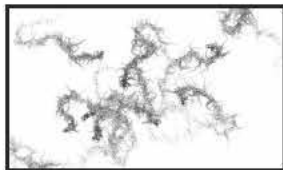
NomeState (2009) Designed and built in collaboration with Jordan Hochenbaum. NomeState allows for easy parsing of Monome and Arduinome OSC input into MIDI data with several different control schemes for the buttons. Users can quickly create Toggle, Trigger, or Note behaviour, generating both MIDI Note and CC information.



Tape Stop (2009) This plug was made to simulate the sound of tape stop, and was designed to be used during live performance. The plug-in uses two different approaches which either create a clean or down sampled sound. In addition to slowing down, the plugin can also “wind up” the audio as well, and the length of the effect can be quantized to note subdivisions of the bar.



Spaces (2009) Designed and built in collaboration with Dimitri Diakopoulos, Jordan Hochenbaum, and Jim Murphy, spaces explored creating a simple and intuitive instrument. Sixteen lanes were grouped, creating four separate instruments with four unique timbre and pitch controls. The pitch material was quantized ensuring that a “wrong” note could not be played. Although this limited the range of sounds, it allowed any individual to immediately understand the interface and begin to make music.



Roots (2009) Designed and built in collaboration with Jordan Hochenbaum, and Memo Akten. Roots invites people to use their fingers to create branching vines that trigger sounds. Using multi-touch finger interaction and fiducials (tangible objects), users are able to make music either completely generatively, semi-random by setting up generative systems/ rules for the environment, or following finger movement.



Weather Report (2008) Designed and built in collaboration with Jordan Hochenbaum, Weather Report sonifies the path that participants draw over a map of the United States. By taking the location, time of day, and current surface temperature, the installation is able to provide a unique composition for every new path drawn over the map. Additional complexity can be added the sounds through the use of tangible objects that loop fragments of found sound.



Audio Chopper (2008) Designed and built in collaboration with Martijn Zwartjes, and Jeffery Lufkin, the “Chopper” streams live audio input and allows users to re-sequence incoming audio in real time. Users can either play the slices directly, or use a 32 note step sequencer.

Selected Musical Works

Minim

In this piece Jordan Hochenbaum and myself used two custom audio plugins (one made in Reaktor, and one made as a VST) to manipulate live input from a piano and acoustic guitar. A custom grain engine was used to create stable feedback clouds which reinforced and mixed the room acoustics with the audio inputs of the acoustic instruments, while a custom VST used a probability matrix to sample and slice incoming audio. All audio input to the plugins were controlled through Arduino based MIDI foot controllers.

NZSM Sonic Arts Concert 09/10/2010 [Http://vimeo.com/15684109](http://vimeo.com/15684109)

The Machine Orchestra

Lead by Dr. Ajay Kapur, TMO is a multi-disciplinary project bringing together Robotics, computer programming, networking, interface design, world music, computer music, and acoustic music. In addition to working on robotics and interface design, I had the opportunity to collaborate with Dimitri Diakopoulos in designing the networking software that allowed for all of the performers to communicate with the robots and each other, while sharing a common time source. I performed in the percussion section controlling my own synths and several robotic drums through the use of my custom made Arudinome interface.

REDCAT Walt Disney Concert Hall 01/27/10 [Http://vimeo.com/15245959](http://vimeo.com/15245959)

Engineering Skills

Programming

Java, C++, Objective-C, HTML, CSS, QT 4.6, QML

Microprocessor

AVR, PIC, Arduino

Circuit Board Design

Altium Protel, Eagle

Operating Systems

Windows, Mac, Linux

Professional Development

CalArts (2011 - Current)

Professor Of Music Technology At MTIID.

FlipMu (2009 - Current)

Co-founder Of FlipMu Interactive Design, Sound And Technology (custom Hardware / Software Solutions For Interactive Art, Installation, Live Musical Performance...etc)

Nokia Research Center Hollywood (December 2009 - March 2009)

Mobile Experience Intern. Development Of Large Format Multi-Touch Surfaces And Communication Framework For Working With Nokia N900.

Research Assistant, Sonic Arts NZSM (July 2009 - Current)

Mobile And Ubiquitous Computing, Human-Computer Interaction (HCI), Multi-touch Interface Design, Creative Computer Programming, Interactive Sound And Multimedia Installation, Music Information Retrieval (MIR), Musical Robotics, Music And Multimedia Software Design, Data Sonification.

Ah! Opera / No Opera (July 2009 - Sept 2009)

Development Of AhText Java Software Application And Custom Multi-Touch Hardware For Ah! Interactive Opera, Redcat/Walt Disney Theatre, Los Angeles California

Slogan Music (May 2008 - July 2009)

Director Of Technology And Special Projects

Royer Labs (May 2005 - Sept 2008)

Microphone Assembly And Analog Audio Electronics

TV Tray Studios (May 2005 - July 2009)

In House Producer. Worked On Several Full Length Albums, Including Tracks That Have Been Used In Major Motion Pictures

Publications / Presentations

2012

Vallis, O., Diakopoulos, D., Hochenbaum, J., And Kapur, A., *Building On The Foundations Of Network Music: Exploring Interaction Contexts And Shared Robotic Instruments*. Organised Sound, Volume 17, Issue 1, 2012.

2011

Vallis, O., Kapur, A. *Community-Based Design: The Democratization Of Musical Interface Construction*. Leonardo Music Journal, Volume 21, 2011.

Kapur, A., Darling, M., Diakopoulos, D., Murphy, J., Hochenbaum, J., Vallis, O., Bahn, C. *The Machine Orchestra: An Ensemble Of Human Laptop Performers And Robotic Musical Instrument*. Computer Music Journal, Volume 35, Issue 4, 2011.

Vallis, O., Hochenbaum, J., Murphy, J., Kapur, A. *The Chronome: A Case Study In Designing New Continuously Expressive Musical Instruments*. Proceedings Of The Australasian Computer Music Conference (ACMC). 2011. Auckland, New Zealand.

2010

Vallis, O., Hochenbaum, J., And Kapur, A., *A Shift Towards Iterative And Open-Source Design For Musical Interfaces*. In Proceedings Of The International Conference On New Interfaces For Musical Expression, Sydney, Australia, June 2010.

Hochenbaum, J., Vallis, O., Diakopoulos, D., Murphy, J., And Kapur, A., *Designing Expressive Musical Interfaces For Tabletop Surfaces*. In Proceedings Of The International Conference On New Interfaces For Musical Expression, Sydney, Australia, June 2010.

Kapur, A., Darling, M., Wiley, M., Vallis, O., Hochenbaum, Et Al., *The Machine Orchestra*. Proceedings Of The International Computer Music Conference, New York City, New York, June 2010.

The Machine Orchestra. Performance At The REDCAT Theater, Walt Disney Music Hall. Los Angeles, California, January 27, 2010.

2009

Hochenbaum, J., Vallis, O. 2009. *Bricktable: A Musical Tangible Multi-Touch Interface*. In Proceedings Of The 2009 Berlin-Open Conference. Berlin, Germany.

Hochenbaum, J., Vallis, O., Diakopoulos, D., Et Al. 2009. *Musical Applications For Multi-Touch Interfaces*. Workshop On Media Arts, Science, And Technology. (January 29-30, 2009). MAST. UCSB, Santa Barbara, CA.

Diakopoulos, D., Vallis O., Hochenbaum J., Et Al. 2009. *21st Century Electronica: MIR Techniques For Classification And Performance*. Proceedings Of The 2009 International Symposium On Music Information Retrieval. October 2009. Kobe, Japan.

2008

Vallis, O., Hochenbaum, J., And Kapur, A. 2008. *Extended Interface Solutions For Musical Robotics*. In Proceedings Of The 2008 Tenth IEEE International Symposium On Multimedia Volume 00 (December 15 - 17, 2008). ISM. IEEE Computer Society, Washington, DC, 495-496.

Press

2011

"Radio Interview On Algorithmic Composition" - [Upbeat \(RadioNZ\)](#)

"LA Monomeet 2011" - <http://www.residentadvisor.net>

2010

"Wham Bam Thank You NAMM" Afterparty And Tech Panel - [CreateDigitalMusic.com](#)

"Chronome: A Monome-Inspired Grid, With Color And Pressure Sensitivity" - [CreateDigitalMusic.com](#)

V/A "Proximity One: Narrative Of A City" (Review Of Trunk) URB Magazine

2009

Produced "Shake Em' Loose Tonight By Rumspinga" Which Was Featured In The Major Motion Film "Spread"

2008

"All I Need (Owen Vallis Mix) By Caroline" - PitchFork.com

"Spaces And Robots: Manipulating Sound With Processing" - CreateDigitalMusic.com

"Roots" - Featured Exhibition On Processing.org

"8 Futuristic Musical Instruments" - Wired Magazine

"Minitex Festival Hits NYC In Sept" - XLR8R Magazine

"Unusual Musical Interfaces @ Yuri's Night" - MAKE Magazine

Selected Music And Production



Mixed *Eli Walks - Parallels*
MOTION± (2012) Japan



Performed, Mixed, Mastered *Machine Orchestra Live At REDCAT*
Karmetik (2010)



"**Trunk**" *Owen Vallis - Proximity One: Narrative Of A City*
Proximal Records (2010)



Mastered *The Dawn Of MIDI - First*
Accretions (2010)



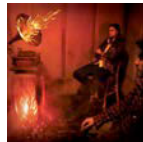
"**Home Movies**" *Speakers - The Black Compilation*
Catalog Records (2010)



"Shade" Speakers - Leadfield
Catalog Records (2009)



Produced, Recorded, Mixed *The Nocturnes* - A Year Of Spring
The Nocturnes (2008)



Produced, Recorded, Mixed *Rumspringa* - EP
Cantora Records (2008)



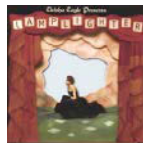
"All I Need (Owen Vallis Mix)" *Caroline* - Murmurs Mixes
Temporary Residence (2008)



"Again" *Owen Vallis* - All On The One
Catalog Records (2008)



Mixed *Phil Crosby Jr.* - Time For Christmas
Vingilot Records (2007)



Produced, Recorded, Arranged *One Part Two* - *Eleisha Eagle* Lamplighter
Eleisha Eagle (2007)