

CURRICULUM VITAE

Jeff Snyder

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RESEARCH AND TEACHING INTERESTS:

Installation art, kinetic art, sound art, tuning theory and extended just intonation, designing electronic musical instruments, historical electronic musical instruments and practices, algorithmic composition, physical computing, improvisatory systems, user interface design, analog circuit design, microcontroller programming, Renaissance and Baroque instrumental music, American country music vocal harmony, philosophy of science.

EDUCATION

Doctor of Musical Arts in Music Composition, Columbia University (January 2011)

Thesis: *Exploration of an Adaptable Just Intonation System* – describes the creation of six experimental electroacoustic musical instruments designed to perform together as an ensemble, and the composition of a piece that uses these instruments exclusively. The instruments all employ a system of extended just intonation with a dynamically re-assignable reference pitch, and their performance interface design reflects this compositional goal.

Advisors: Brad Garton (dissertation advisor), Douglas Repetto, Joe Dubiel, Fred Lerdahl, George Lewis, Larry Polansky, Nick Didkovsky

Selected Coursework:

- MEAP (Music and Engineering Art Projects) - an experimental class that lasted for 6 semesters and brought Electrical Engineering doctoral students from LabRosa together with Music Composition students from the Computer Music Center.
- Kinetic and Sound Sculpture - taught by Douglas Repetto and Jon Kessler.
- Advanced Orchestration - taught by Tristan Murail.

Master of Arts in Music Composition, Columbia University (2006)

Bachelor of Arts in Music Composition, University of Wisconsin-Madison (2003)

Thesis – The Development of a Useful Musical Scale Based on Inharmonic Uniform Bar Partials

Advisors: Stephen Dembski, Joel Naumann

ACADEMIC BACKGROUND

Teaching:

Fall 2011, *Princeton*.
Studio Techniques – Lecturer
Spring 2011, *Princeton*.
Princeton Laptop Orchestra – Lecturer
Fall 2009, Summer 2006, Spring 2006, Fall 2005, *Columbia*.
Music Humanities – Lecturer
Spring 2008, *Columbia*.
Computer Music II – Teaching Assistant
Fall 2007, Fall 2006, *Columbia*.
Basic Electroacoustics I – Teaching Assistant
Spring 2007, *Columbia*.
Basic Electroacoustics II – Teaching Assistant
Spring 2005, *Columbia*.
Music Humanities – Teaching Assistant
Fall 2004, *Columbia*.
Rock Music – Teaching Assistant

Honors and Fellowships:

Computer Music Magazine Innovation and Performance Awards, 2009
Columbia University Dissertation Fellowship, 2008-2009
Columbia University Teaching Fellowship, 2003-2008
Cypress Semiconductor Innovator Design Award, 2007
Columbia University Summer Research Fellowship 2004, 2007
Music and Engineering Art Projects Summer Grant, 2006
Hilldale Undergraduate Research Fellowship, 2001
Ethel J. Odegard Scholarship for Music Academics (Music Theory), 2000

Papers and Invited Presentations:

November 2011
Presented my analog pen plotter drawings as part of the Algorithmic Unconscious show at Devotion Gallery in Williamsburg, NYC.
October 2011
Performed on Manta and computer-controlled cymbals, and presented at the “Science Fair” in the Max/MSP Cycling 74 Expo at NYU Poly in NYC.
October 2011
Co-led a workshop on electronic music for high school students at Jacqueline Kennedy Onassis high school in NYC.
June 2011
Presented the Birl and the Manta at the Solid Sound Festival at Mass MOCA as part of Handmade Music.
May 2011
“The Snyderphonics Manta, a novel USB touch controller”.
Presented as a paper at NIME 2011 in Oslo, Norway.
February 2011
Presented the Birl at the Guthman Musical Instrument Competition at Georgia Tech.

November 2010
 "Pen Plotter and PCB etching art"
 Presented at Dorkbot NYC.

March 2010
 Presented my work at STEIM in Amsterdam, Netherlands.

March 2010
 Presented the Manta at the Guthman Musical Instrument Competition at Georgia Tech.

June 2009
 Presented my work at the *Escrita na Paisagem* festival in Evora, Portugal.

July 2008
 Presented my work to NYU Summer Music Class for High School Students.

January 2008
 "*New Electronic Musical Instruments*"
 Presented at Dorkbot NYC.

October 2007
 Presented the work of *The Draftmasters* at Eyebeam Gallery's Untethered.

June 2007
 "*The MEAPbook: a polyphonic touch-sensitive keyboard*"
 Presented at NIME (New Interfaces for Musical Expression) 2007.

January 2007
 "*MEAPsoft: MEAPsoft!!!*"
 Presented at Dorkbot NYC.

December 2006
 Presented audio manipulation techniques to middle-school children as part of the MEAP course.

October 2005
 "*Acoustic Sounds, Electronic Means*"
 Presented at Dorkbot NYC.

PROFESSIONAL EXPERIENCE

Positions:

Princeton University

Technical director 2010-present

Duties: manage the recording and electronic composition studios.
Teach a course in recording studio techniques. Advise students on artistic projects involving electronics.

Associate Director of the Laptop Orchestra 2010-present

Duties: lead rehearsals with the laptop orchestra, co-teach classes.

Snyderphonics

Owner, lead design engineer 2009-present

Duties: design and develop electronic musical instruments for low-volume manufacturing. Produce CAD drawings for electrical fabrication, mechanical fabrication, assembly, machining. Develop microcontroller code for firmware, and host computer code for software.

Carrier Records

Co-owner, 2009-present

Duties: curate and oversee recording projects, design album art.
Engineer and mix recordings.

Wet Ink Ensemble

Technical director 2004-2007

Duties: organize all technical requirements for Wet Ink performances, act as recording engineer for all performances, and perform or execute electronics parts when called for by a piece.

Member composer 2004-present

Performer on electronics 2004-present

WKCR

Radio host for New Music 2004-2005

Duties: prepare and host a 3-hour program of New Music for radio broadcast in the NYC area every Monday afternoon from 3-6pm.

College Library, University of Wisconsin-Madison

Computer Help Desk 2000-2002

Duties: help students in the library with computer problems or questions on software like Dreamweaver, Photoshop and Illustrator and Acrobat.

Selected Compositions:

Fantasy (2011)

(for Magnetic Resonator Piano)

First performance by Eric Wubbels at Rock Hall at Temple University, December 2011, Philadelphia, PA

Whac-A-Note (2010)

(for laptop orchestra using Manta controllers)

First performance by the Princeton Laptop Orchestra at Taplin Hall at Princeton University, April 2011, Princeton, NJ

Concerning the Nature of Things (2009)

(for Manta, treble and tenor contravielles, birl, and two voices)

First performance by Wet Ink Ensemble at St. Peter's Church in Chelsea, May 2009, NY, NY.

Percussion III (2008)

(for string orchestra and computer-controlled cymbals)

First Performance by the Knights String Orchestra at BargeMusic, December 2008 at BargeMusic NY, NY.

Traceries (2005, revised 2008)

(for chamber ensemble with electronics)

First performance by Wet Ink Ensemble at Roulette, October 2008, NY, NY.

Vox In Vitro (2008)

(for three invented instruments – Manta, treble contravielle, tenor contravielle – and eight acoustic instruments)

First performance by the ICE chamber ensemble at Merkin Hall in Kaufman Center, April 2008, NY, NY.

Partita (2007)

(for three invented instruments – Manta, treble Contravielle, tenor Contravielle)

First performance by Eric Wubbels and Matt Hough at Symphony Space, December, 2007, NY, NY.

Materials (2007)

(for chamber orchestra and live analog modular synthesizer through acoustic resonators)

First performance by Wet Ink Ensemble with the composer on electronics at New York Quarterly Meeting House, May 2007, NY, NY.

Epicycles (2007)

(for guitar and accordion)

First performance by Eric Wubbels (accordion) and Matt Hough (electric guitar) at Symphony Space, January 2007, NY, NY.

Interior (2006)

(for tenor saxophone modified with custom electronics)

Commission for Eliot Gattegno; first performance at Stanford University,
November 2006, Palo Alto, CA.

Nomographs (2006)

(for percussion trio)

Commission for Timetable Percussion Trio; first performance at Tenri Cultural
Institute, September 2006, NY, NY.

Percussion (2006)

(for computer controlled cymbals)

First Performance at Tenri Cultural Institute, February 2006, NY, NY.

Dance Suite (2006)

(for recorder, baroque cello and harpsichord)

First performance by L'Ensemble Portique, February 2006, Madison, WI.

Intervellum (2004)

(for electric guitar, Rhodes piano, violin and cello)

First Performance at Tenri Cultural Institute, December 2004, NY, NY.

Vibration I (2004)

(for accordion, two percussionists, electric guitar, and electronics)

First performance at Merkin concert Hall at Kaufman Center, April 2004, NY,
NY.

Tombeau (2003)

(for solo electronics)

First performance at the Tank, January 2004, NY, NY.

Retina (2002)

(for electronics, guitar, and percussion)

First performance at Deadtech Gallery, March 2003, Chicago, IL.

Selected Artistic Collaborations, Sound Art and Installations:

The Draftmasters – art/music duo with Victor Adan employing pen-plotters from the
1980s as performance instruments, combining live visual art with sound art.
2007-present.

The Draftmasters have performed at the Chelsea Art Museum, Issue Project
Room, Monkeytown, and the Tank, NY.

exclusiveOr – duo with Sam Pluta, playing invented instruments and mixing analog and
digital synthesis techniques. 2006-present. exclusiveOr has performed at
Monkeytown, Warper, and the Sonic Festival.

Jeff Snyder / Eric Wubbels – duo with Eric Wubbels. I play analog synthesizer, and he
plays my computer-controlled cymbals, using a dual-Manta setup. 2011-
present.

Trio with Kathryn Young and Erica Dickers – I played Serge modular synthesizer in this trio, which groups me with bassoon and baritone violin. We formed in the Summer of 2009 and performed several times in 2009/2010.

Soundtrack for Catherine Czacki's video pieces **White Ocean** and **Blue Ocean**. 2008.

Sound piece for Gandalf Gavan's installation at Larissa Goldstons Gallery: **Back Rooms and Other Places of Public Privacy**. 2007.

Live Soundtrack written and performed for **Everybody's Different** by the Fivefour Dance Group at Joyce Soho. 2007.

Live Soundtrack written and performed for **Lunch Date** by the Fivefour Dance Group at Chashama.

Bang, a piece originally written collaboratively by Jeff Snyder and Ryan Smith for performance in 2004 with choreographer Nora Stephens, has since been used for a video installation by Nora Stephens in the Brooklyn Public Library. 2006.

Four-channel soundtrack for Gandalf Gavan's video piece **Reflection**. 2005.

'Till You Drop, collaboration with choreographer Nora Stephens. Culminated in a dance performance with live music accompaniment in a storefront window in Midtown Manhattan in 2004.

Speak Low, collaborative installation between Jeff Snyder and Gandalf Gavan in 2004, including 500 light bulbs, 4 telephones, and 4 custom-built metallic sound transducers. Installed at Low Library at Columbia University.

Selected Recordings:

- "Wet Ink Ensemble"** (2009) The first release on Jeff Snyder and Sam Pluta's new label for experimental music, Carrier Records. Includes *Traceries*.
- "Cougar – Patriot"** (2009) Instrumental rock group Cougar recorded Jeff Snyder's piece "Endings" on their September 2009 release "Patriot" on Ninjatune Records.
- "The Language Of"** (2008) Includes *Sunspots I, II, and III* for Buchla synthesizer through acoustic resonators. Released on QuietDesign Records.
- "exclusiveOr - ^"** (2008) Self-Titled album of Jeff Snyder's duo with Sam Pluta, released on QuietDesign Records.
- "Owen Lake – A Love on My Mind"** (2007) Electro-country EP recorded under the pseudonym Owen Lake in 2007. Jeff Snyder on lead vocals, electronics, bass and production.
- "Twin Thousands – Like You A Lot"** (2007) Includes a Jeff Snyder remix of title track, Exercise 1 records.
- "A Million Billion – Volcano Season"** (2006) Includes a Jeff Snyder remix of title track, Exercise 1 records.
- "The Power-Ups"** (2004) Self-released live recording of original arrangements for rock band of theme music from classic video games. Jeff Snyder on synthesizer and electric guitar and all arrangements.
- "Public Enemy – Revolverlution"** (2002) Includes a remix of "The B-Side Wins Again" by Jeff Snyder.
- "Scattershot – Extrasexual Behavior"** (2002) Self-released recording of original electro-funk under the pseudonym Scattershot.

Commissions:

The Knights String Orchestra - 2008
Elliot Gattegno -2006
L'Ensemble Portique -2006
Timetable Percussion Trio -2006

ENGINEERING AND DESIGN:

Projects:

JD-1

The JD-1 is a keyboard/sequencer controller. It has an integrated high-resolution digital-to-analog conversion system so that it can accurately control analog modular synthesizers. There are 32 keys, CNC-milled from aluminum, which act as capacitive touch sensors, and each key has two associated knobs. The knobs can be used as arbitrary tuning controls, or as stages of a built-in step sequencer. Touching the keyboard can modify the step sequencer functionality. Made from walnut, birch-ply, aluminum, and custom-designed circuitry.

Manta

The Manta is a touch-sensitive device with a hexagonal keypad layout. First presented at NIME 2007 as the MEAPbook, later redesigned for compact size and portability as the Manta. The original production run of sixty Mantas was released in May of 2009, and I have since sold over 130 of them through my electronic instrument design company, Snyderphonics. It uses capacitive touch sensing, and communicates with a multimedia computer using the USB HID protocol. Made from maple or walnut, birch plywood, custom-designed circuitboards, and silicone rubber.

Bass Manta and Resophonic Manta Resonators

Two unique resonators have been built for the manta. Both are around 4 feet high, 2 feet wide, and 2 feet deep. The Bass Manta is inspired by orchestral double-bass construction techniques. It includes a carved spruce top-plate, a maple back, a maple bridge and a maple soundpost connecting the top-plate to the back. The Resophonic Manta uses a spun aluminum cone, based on the 1920s design of a resophonic guitar by the Dopyera brothers. The cone is fitted to a thin spruce top, and firmly connected to a maple bridge. The back is walnut, but there is no soundpost connection. Both of these resonators use large electromagnets in maple bracing to drive the bridge with speaker-level signals from the Manta.

The Birl

The Birl is a recent project that uses a wind instrument control interface to drive a stepper motor. The electronically driven stepper motor is connected to two more stepper motors by a timing belt pulley system, and the rotation of these motors is sensed by a custom-designed electromagnetic pickup. Therefore, the motors act as mechanical oscillators, and the pitch of the oscillators is in a fixed ratio to the frequency of rotation of the electronically-driven motor. A breath-sensor sets the gain of the output audio, which drives a sitka spruce soundboard affixed to the instrument's resonator. Made from maple, birch and spruce, custom-designed circuitboards, commercial stepper motors, and machined aluminum.

Treble and Tenor Contravielles

The Treble and Tenor Contravielles are two instruments on which development began in 2005. They are designed to simulate a string instrument interface, although sound generation is wholly electronic. Carved in a unique shape out of wood, these two instruments constitute part of an instrumental family, much like a violin and cello.

The top-plate on the instrument, designed to be driven by a large electromagnet, allows the whole instrument to act as a resonator for the electronic sound, imparting the individual characteristics of the resonator onto the spectrum of the tone. Pitches are selected by a button grid in a "fretboard"-style layout, and "strings" are plucked by the right hand as it passes across capacitive touch sensors. Sound generation is provided by a custom-built digitally-controlled analog synthesizer, which has the capability to play just intonation tuning systems with one cent accuracy for most of the instruments' ranges. Made from sitka spruce, birch plywood, pine, custom-designed circuitboards, aluminum and silicone rubber.

Miya Masaoka's fader controller

In 2007, I designed and built a custom electronics controller for Miya Masaoka, that incorporates several faders and external inputs for infrared sensors and laser-based sensing systems. It is the performance system she currently uses for her improvisation. Made from custom-designed circuitboards in a plexiglass assembly.

Serial-to-CV DAC box

In 2005, I designed and built a serial-to-CV DAC box to interface the Computer Music Center's historical analog synthesizers with modern computers. This box allows both the Serge Series 79 synthesizer and the Buchla 100 modules owned by the Computer Music Center to achieve relatively accurate tuning and timing control. Made from custom circuitboards in a steel enclosure with Dakaware knobs.

Anolé

In 2002, I designed and built an acoustic string instrument with removable just-intonation fretboards and swappable resonators. The instrument could be either plucked or bowed, and allowed either electric or acoustic amplification. This project was undertaken in collaboration with visual artist Don Miller, and produced a successful instrument on which I performed between 2002-2004. Made from aluminum, cocobolo, maple, ebony, commercial tuning pegs, and steel strings.

SKILLS AND PROFICIENCIES:

Computer Programming – C/C++, Max/MSP, Chuck, PD, Perl, some Python.

Audio Engineering and Production – Digital Performer, Logic, ProTools, Cubase, Waves, Reason, Kontakt, Ableton Live, Soundhack, Soundforge, Peak.

Electrical Engineering – analog circuit design, digital circuit design, layout CAD design, Atmel AVR microcontrollers, Cypress microcontrollers, Eagle, Protel, SPICE modeling, USB protocols, I2C, RS-232, and SPI serial communication, EMI design for multi-layer boards.

Mechanical Engineering – AutoCAD, Sketchup.

Woodworking – table saw, CNC machining (G-Code), laser cutting, band saw, router, hand tools.

Metal working – lathe, manual mill, drill press, hand tools.

Music Performance – live electronics (analog modular synthesizers, custom-built electronics, laptop systems, and live processing), electric bass, electric guitar, and baritone voice.