

**Christopher
Ariza**

Composer and programmer of sonic structures and systems

ariza@flexatone.net
www.flexatone.net

page 1

Appointments

Massachusetts Institute of Technology, Music and Theater Arts
Fall 2009 to present
Visiting Assistant Professor of Music
Lead Programmer, music21

Computer Music Journal, MIT Press
Spring 2010 to present
Assistant Editor, Manuscripts

Towson University, Department of Music
Fall 2006 to Spring 2009
Assistant Professor of Music Technology and Recording Arts
Pedagogical Director, Recording Studio of the Towson University
Department of Music

Education

New York University
Graduate School of Arts and Sciences, Music Department
Fall 2002 to Spring 2005, PH.D. in Music Composition and Theory
Dissertation: *An Open Design for Computer-Aided Algorithmic Music Composition:
athenaCL*. Advisor: Elizabeth Hoffman

Institute of Sonology
Royal Conservatory, The Hague, the Netherlands
Sonology Course
United States Fulbright/Netherlands-America Foundation Grant
Fall 2004 to Spring 2005
Research in algorithmic composition system design supervised by Paul Berg.

New York University
Graduate School of Arts and Sciences, Music Department
Fall 1999 to Spring 2002, M.A. in Music Composition and Theory
Composition studies with Elizabeth Hoffman and Louis Karchin

Harvard University
Fall 1995 to Spring 1999, A.B. in Music with Honors
Composition studies with Mario Davidovsky, Jeff Nichols, and
Michael Gandolfi

Journal Publications

2011. "Two Pioneering Projects in the Early History of Computer-Aided
Algorithmic Composition." *Computer Music Journal*. 35(3): 40–56.

2009. "The Interrogator as Critic: The Turing Test and the Evaluation of
Generative Music Systems." *Computer Music Journal*. 33(2): 48–70.

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 2

Journal Publications (continued)

2008. "Python at the Control Rate: athenaCL Generators as Csound Signals." *Csound Journal*. 9. Internet: <http://www.csounds.com/journal/issue9>

2007. "Automata Bending: Applications of Dynamic Mutation and Dynamic Rules in Modular One-Dimensional Cellular Automata." *Computer Music Journal* 31(1): 29–49.

2005. "The Xenakis Sieve as Object: A New Model and a Complete Implementation." *Computer Music Journal* 29(2): 40–62.

Publications in Proceedings

2012. "Fast, Cheap, and Expressive Musical Control: Building and Training a Live Electronics Ensemble with Pure Data and Martingale" In *Proceedings of the Symposium on Laptop Ensembles and Orchestras*. Forthcoming.

Cuthbert, M. S., C. Ariza, and L. Friedland. 2011. "Feature Extraction and Machine Learning on Symbolic Music Using the music21 Toolkit." In *Proceedings of the International Society for Music Information Retrieval*.

Ariza, C. and M. S. Cuthbert. 2011. "The music21 Stream: A New Object Model for Representing, Filtering, and Transforming Symbolic Musical Structures." In *Proceedings of the International Computer Music Conference*. pp. 61–68.

Ariza, C. and M. S. Cuthbert. 2011. "Analytical and Compositional Applications of a Network-Based Scale Model in music21." In *Proceedings of the International Computer Music Conference*. pp. 701–708

Dierbach, C, and H. Hochheiser, S. Collins, J. Gerald, C. Ariza, T. Kelleher, W. Kleinsasser, J. Dehlinger, S. Kaza. 2011. "A Model for Piloting Pathways for Computational Thinking in a General Education Curriculum." In *Proceedings of the 42nd ACM Technical Symposium on Computer Science Education (SIGCSE 2011)*, pp. 257–262.

Ariza, C. and M. S. Cuthbert. 2010. "Modeling Beats, Accents, Beams, and Time Signatures Hierarchically with music21 Meter Objects." In *Proceedings of the International Computer Music Conference*. pp. 216–223.

Cuthbert, M. S. and C. Ariza. 2010. "music21: A Toolkit for Computer-Aided Musicology and Symbolic Music Data." In *Proceedings of the International Society for Music Information Retrieval*.

2009. "Sonifying Sieves: Synthesis and Signal Processing Applications of the Xenakis Sieve with Python and Csound." In *Proceedings of the International Computer Music Conference*.

2008. "Applications of Algorithmically Generated Digital Audio for Web-Based Sonic Measure Ear Training." In 125th Convention of the Audio Engineering Society. Convention Paper 7645.

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 3

Publications in Proceedings (continued)

2007. “The Serial rSS Sound Installation as Open Work: The *babelcast*.” In *Proceedings of the International Computer Music Conference*, vol. 1, pp. 275–278.

2005. “Navigating the Landscape of Computer-Aided Algorithmic Composition Systems: A Definition, Seven Descriptors, and a Lexicon of Systems and Research.” In *Proceedings of the International Computer Music Conference*, pp. 765–772.

2004. “An Object-Oriented Model of the Xenakis Sieve for Algorithmic Pitch, Rhythm, and Parameter Generation.” In *Proceedings of the International Computer Music Conference*, pp. 63–70.

2003. “Ornament as Data Structure: An Algorithmic Model based on Micro-Rhythms of Csángó Laments and Funeral Music.” In *Proceedings of the International Computer Music Conference*, pp. 187–193.

2002. “Prokaryotic Groove: Rhythmic Cycles as Real-Value Encoded Genetic Algorithms.” In *Proceedings of the International Computer Music Conference*, pp. 561–567.

Conference Presentations

Yust, J (Chair) and C. Ariza, M. S. Cuthbert, M. Farbood, P. Mavromatis, R. Plotkin, and K. Shaffer. 2011. “Computational Approaches to Music Theory and Analysis: Overview and Hands-On Tutorial.” Presented at the Society for Music Theory (SMT) National Conference, Minneapolis, Minnesota.

Ariza, C. and M. S. Cuthbert. 2010. “Modeling Musical Structures as Objects in music21.” Presented at the Society for Music Theory (SMT) National Conference, Indianapolis, Indiana.

2010. “Mapping Pitch Space with the Xenakis Sieve: Compositional Applications of Non-Octave-Repeating Scales.” Presented as part of *Xenakis Past, Present, and Future*, Brooklyn Experimental Media Center, NYU Polytechnic, Brooklyn, New York.

2009. “Misrepresentation and Overestimation in Generative Music Systems: A Case Study in the Representation and Reception of WolframTones.” Invited presentation as part of “Algorithmic Composition and Interactive Music,” chaired by Carlos Guedes, 6th Sound and Music Computing (SMC) Conference, Porto, Portugal.

2009. “The Canon and Free Fugue of Sister Harriet Padberg: A Pioneering Approach to Computer-Aided Algorithmic Composition in the United States.” Presented at the Society for Electro-Acoustic Music in the United States (SEAMUS) National Conference, Fort Wayne, Indiana.

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 4

Conference Presentations (*continued*)

2008. "Pedagogical Applications of Web-Based Generative Music Systems: A Comparison of Envl.net and Related Tools." Presented at the Association for Technology in Music Instruction (ATMI) National Conference, Atlanta, Georgia.

2007. "Post-Ut: A Web-Based Ear Training System for Computer Musicians and Audio Engineers." Presented at the Association for Technology in Music Instruction (ATMI) National Conference, Salt Lake City, Utah.

2002. "A New Language for Computer-Aided Post-Tonal Pitch Analysis: Python and the Open Source athenaCL Project." Presented at the Society for Music Theory (SMT) National Conference, Columbus, Ohio.

2001. "athenaCL: Set Class Utility and Algorithmic Composition in Csound." Presented at the Society for Electro-Acoustic Music in the United States (SEAMUS) National Conference, Baton Rouge, Louisiana.

Invited Lecture Presentations

2011. "Learning MOSS (the MOBILE Sound System for Teaching and Learning at MIT)." Two-part series on recording techniques presented to the faculty of the Music and Theater Arts section, MIT.

2011. "Improvising with Noise: New Instruments for New Music." Presented as part of the Freshman Advising Seminar: "Creation/Innovation: Arts at MIT," Sara Brown and Sam H. Magee, MIT.

2011. "Generative Music as a Prop for Technological Play: Historical Perspectives and Aesthetic Alternatives." Presented as part of a Burchard Dinner-Seminar, MIT.

2011. "Real-Time Speech Signal Processing and Transformation for Digital Poetry." Presented as part of: "Digital Poetry," Amaranth Borsuk, MIT.

2010. "Analog Drum Synthesis and the Communicative Power of Low Frequency Effects." Presented as part of: "Tactile Sound & the Pursuit of Silence in a Noisy World," Live from the NYPL, The New York Public Library.

2010. "Composing and Designing Interactive Real-Time Computer Music Systems: A Case Study." Presented as part of: "American Music Since 1960," Karen Ruymann, The Boston Conservatory.

2010. "Large-Scale System Design for Live Electronics in Max/MSP." Presented as part of a three-part lecture series at the Institute of Sonology, Royal Conservatory, The Hague, the Netherlands.

2010. "The Rhetoric and Marketing of Generative Music Systems: Myths and Misrepresentations." Presented as part of a three-part lecture series at the Institute of Sonology, Royal Conservatory, The Hague, the Netherlands.

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 5

Invited Lecture Presentations *(continued)*

2010. "Building Beats and Polyrhythms with the Xenakis Sieve: A Workshop in athenaCL and Python." Presented as part of a three-part lecture series at the Institute of Sonology, Royal Conservatory, The Hague, the Netherlands.

2010. "Events per Unit of Time: Density as a Compositional Parameter in the Music and Synthesis Techniques of Iannis Xenakis." Presented as part of: "Interdisciplinary Approaches to Musical Time," Marcus Thompson and Martin Marks, MIT.

2009. "Noise from Numbers: Computer Music Synthesis Systems in History and Practice." Presented as part of: "Introduction to Electronic and Computer Music: Histories, Practices, and Politics," Jenny Olivia Johnson, Wellesley College.

2009. "Automating the Exploration of Composition and Synthesis Parameters with athenaCL." Presented as part of: "Synthesis Theory/Digital Music Programming," Geoffrey Wright, The Peabody Institute.

2009. "Texture and Polytexture." Presented as part of the Department of Music Composition Seminar, Towson University.

2009. "From Patchcords to Presets: The Suppression of Timbral Creativity in Synthesizers from 1964 to 1983." Presented as part of: "Popular Music in the U.S.: the 1970s," Christina Magaldi, Towson University.

2009. "Code as Musical Interface: An Overview of Languages for Sound Synthesis and Signal Processing." Presented to the Students for the Advancement of Information Technology, Towson University.

2008. "Creative Mediation and Dynamic Identities in the Recent History of New Musical Interfaces." Presented as part of: "Culture and Identity," Gerald Phillips, Towson University.

2007. "An Introduction to Computer-Aided Algorithmic Music Composition and athenaCL: Historical Models and New Approaches." Presented as part of: "Mathematical Sciences Colloquia Series," Susquehanna University.

2007. "Aesthetic Rationalization: (Mis)applications of Scientific Thought to Music." Presented as part of: "Music, Culture, and Society: A Decade in the 20th Century," Christina Magaldi, Towson University.

2005. "An Introduction to athenaCL and a Theory, History, and Application of the Xenakis Sieve" Presented as part of: "Computer-Assisted Algorithmic Composition," Paul Berg, Institute of Sonology, Royal Conservatory, The Hague, the Netherlands.

Christopher **Documentation & Position Papers**

Ariza

Ariza, C. and M. S. Cuthbert. 2010. *Music21 Documentation*. Distributed via mit.edu/music21.

ariza@flexatone.net
www.flexatone.net

2010. *athenaCL Tutorial Manual: Third Edition*. Distributed via flexatone.net.

page 6

2009. *Pure Data Object Glossary*. Distributed via flexatone.net.

2008. "Teaching Computational Thinking through Generative Art Systems." Position paper as part of a proposed National Science Foundation (NSF) Grant titled "CPATH-CDP: Pilot Pathways for Computational Thinking in a General Education Curriculum."

2008. *Composing Musical Structures within a Web-Browser: A Guide to Envl.net*. Distributed via flexatone.net.

2008. "Establishing an Audio Commons Archive: The Benefits of a Non-Commercial Attribution License for Pedagogical Recording Sessions." Towson University position paper.

2007. "Creative Software, Copyright, and Intellectual Property in the University: An Argument by *Reductio ad Absurdum*." Towson University position paper.

2006. "Beyond the Transition Matrix: A Language-Independent, String-Based Input Notation for Incomplete, Multiple-Order, Static Markov Transition Values." Distributed via flexatone.net.

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 7

Selected Publications Featuring Software & Research

Software (athenaCL) demonstrated in: Phillips, Dave. 2010. "Algorithmic Music Composition with Linux—athenaCL" *Linux Journal*. 16 August 2010. Available online: <http://www.linuxjournal.com/content/algorithmic-music-composition-linux-athenacl>

Software (Post-Ut) demonstrated in: Hosken, Dan. 2010. *Introduction to Music Technology*. New York: Routledge. 291.

Software (athenaCL) demonstrated in: Collins, Nick. 2010. *Introduction to Computer Music*. Chichester: John Wiley & Sons: 310.

Software (oxDrone) demonstrated in: Engelke, Luis. 2008. "More Twenty-First Century Practice Techniques." *International Trumpet Guild Journal*. June: 61-62.

Software design and implementation (athenaCL) for research presented in: Straus, Joseph. 2003. "Uniformity, Balance, and Smoothness in Atonal Voice Leading." *Music Theory Spectrum* 25(2): 305-352.

Published Course Materials

2012. 21M.380: Music Technology: Live Electronics Performance Practices. MIT Open Courseware. Forthcoming.

2011. 21M.380: Music Technology: Algorithmic and Generative Music Systems. MIT Open Courseware.

2010. 21M.380: Music Technology: History and Aesthetics. MIT Open Courseware.

Fellowships, Grants, & Prizes

2008-2010. National Science Foundation Grant, Faculty Associate: "CPATH-CDP: Piloting Pathways for Computational Thinking in a General Education Curriculum"

2006, 2007, 2008, 2009. Towson University, COFAC Faculty Travel Grant

2004-2005. United States Fulbright / Netherlands-America Foundation Grant in Computer Sciences

2003. Finalist, 25th Concorso Internazionale "Luigi Russolo" (*moloch whose name is the mind*)

2002. BMI Student Composer Award (*the square perfected has no corner*)

2001. BMI Student Composer Award (*holy the bop apocalypse*)

2002, 2003, 2004. New York University, GSAS Student Travel Grant

1999-2004. New York University, MacCracken Fellowship

1999-2004. New York University, Dean's Fellowship

1999. Harvard University, Hugh F. MacColl prize in composition, for *comma*

1999. Harvard University, John Green Fellowship for composers

1996. Harvard University, Detur Prize for Academic Achievement

Recordings & Distributed Media

2011. Composition (*Work III*) distributed as part of the “The Best is Noise.” Carrier Records.
2009. Composition (*equinoctial worms*) included as part of the 60x60 2009. International Mix. Vox Novus.
2009. Mastered, and performed live electronics on the CD *KIOKU: Live 6.14.08*. Quiet Design Records.
2007. Engineered, mixed, mastered, and performed live electronics on the CD *KIOKU: Both Far and Near*. Quiet Design Records.
2007. Composition (*phanopoeiac*) included as part of the CD *RESONANCE: The Steel Pan in the 21st Century*. Quiet Design Records.
2006. Composition (*onomatopoeticized*) included as part of the CD *Music from SEAMUS*. Volume 15. Society for Electro-Acoustic Music in the United States.
2004. Sound design for the short film *Indiscretion (101)*, directed by Alexis Lloyd, released in 2006 as part of the launch of NANO, distributed by Big Film Shorts.

Commissions & Juried Performances

2012. Conference exhibition (*Stillchime No. 1*). Society for Electro-Acoustic Music in the United States (SEAMUS), Appleton, Wisconsin.
2011. Conference performance (*pulsefact #2*). International Computer Music Conference (ICMC), Huddersfield, England.
2009. Conference performance (*demiurgic ecstasy whispering in streets of ear*). International Computer Music Conference (ICMC), Montreal, Canada.
2009. Conference performance (*endless ladders streaming in eternity*). 6th Sound and Music Computing (SMC) Conference, Porto, Portugal.
2009. Festival performance (*demiurgic ecstasy whispering in streets of ear*). New York City Electroacoustic Music Festival (NYCEMF), New York, New York.
2008. Festival performance (*demiurgic ecstasy whispering in streets of ear*). Art of Sounds Festival, Guarnerius Art Center, Belgrade, Serbia.
2008. Composition (*phanopoeiac*) selected for inclusion in *Parallel Sound Objects*, multimedia installation by Marko Batista, Multimedia Centre KIBLA, Maribor, Slovenia
2007. Conference performance (*phanopoeiac*). International Computer Music Conference (ICMC), Copenhagen, Denmark.
2007. Conference performance (*onomatopoeticized*). Society for Electro-Acoustic Music Conference, Stockholm, Sweden.
- 2006, 2007. Composition (*onomatopoeticized*) selected for inclusion in NWEAMO Jukebox in San Diego, Portland, and New York City
2006. Conference performance (*metalloidesque electronico-clankered*). International Computer Music Conference (ICMC), New Orleans, Louisiana.
2006. Festival Radio Selection (*babelcast*). Spark Festival of Electronic Music and Art, Minneapolis, Minnesota.
2005. Conference performance (*onomatopoeticized*). Society for Electro-Acoustic Music in the United States (SEAMUS), Muncie, Indiana.
2005. Festival Performance (*moloch whose name is the mind*). Look & Listen Festival, New York, New York.

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 9

Commissions & Juried Performances (*continued*)

2004. Conference performance (*lathe*), Participant. June in Buffalo Composers Conference, “Music and Computers.”
2004. Conference performance (*swarmmeme*). Society for Electro-Acoustic Music in the United States (SEAMUS), San Diego, California.
2003. Guest Composer. TaikoProject, Los Angeles, California. Commission for two new works (*lathe* and *fog dream neon'd*).
2003. Conference performance (*swarmmeme*). Electric Rainbow Coalition: a Festival of Electro-Acoustic Music, Dartmouth College.

Complete Performance List

Available upon request.

Teaching

Massachusetts Institute of Technology

“Music and Technology: Recording Techniques and Audio Production” (21M.380). Spring 2012. Foundations, practices, and creative techniques in audio recording and music production, including microphone selection and placement, mixing, mastering, signal processing, automation, and digital audio workstations.

“Music and Technology: Live Electronics Performance Practices” (21M.380). Spring 2011, Fall 2011. Creative, hands-on exploration of contemporary and historical approaches to live electronics performance and improvisation, including basic analog instrument design, computer synthesis programming, and hardware and software interface design.

“Harmony and Counterpoint I” (21M.301). Fall 2010. An introduction to the fundamental tools of written and aural Western music. These tools include harmony, counterpoint, voice-leading, phrase structure, and form. The acquisition and development of compositional techniques are emphasized.

“Music and Technology: Algorithmic and Generative Music Systems” (21M.380). Spring 2010. The history, techniques, and aesthetics of mechanical and computer-aided approaches to algorithmic music composition and generative music systems. Diverse tools and systems are employed, including applications in Python, MIDI, Csound, SuperCollider, and Pure Data. Original research and hands-on creative projects are emphasized.

“Music and Technology: Contemporary History and Aesthetics” (21M.380). Fall 2009. An investigation into the history, culture, and aesthetics of music and technology as deployed in experimental and popular musics from the 19th century to the present. Original research and hands-on creative projects are emphasized.

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 10

Teaching (continued)

Towson University

“Building Synthesizers with Software: The Practice of Modular Synthesis in Music” (HONR 225). Spring 2009. This newly-designed course explores hands-on creative audio and music programming using Pure Data within the context of historic modular synthesizers and electronic instruments.

“New Interfaces for Music Ensemble” (MUSA 267/467). Fall 2008. This newly-designed ensemble explores performance with laptops, live electronics, new musical interfaces, and electro-acoustic instruments. Custom designed and programmed interfaces are used to train fundamental practices, procedures, and interactions in live electronics.

“Creative Programming and Programming Creativity—Introductory Computer Science for Artists” (HONR 225). Fall 2007. This newly-designed course studies elementary computer programming using the Python language, and applies these skills to the production of creative works such as poetry, visual art, and music.

“Recording Techniques I” (MUSC 281). Fall 2006, Fall 2007, Fall 2008. Theory and applications of recording techniques, as well as the history, concepts, and mechanics of the recording process. Creative and experimental applications of microphones and microphone arrays are emphasized.

“Recording Techniques II” (MUSC 482). Spring 2007, Spring 2008, Spring 2009. Advanced subjects in audio engineering, including DAWs, recording and mixing in surround sound, advanced DSP and MIDI applications, and professional mastering techniques.

“Music and Technology in American Society” (MUSC 114). Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2008. This course examines the role of technology in shaping the development of contemporary American music. Twentieth century developments in recording arts, musical interfaces, musical languages, and generative music systems are examined in detail.

“Songwriting—Basic Music Composition for Non-Majors” (MUSC 116). Spring 2007, Spring 2008. This course develops techniques of basic music composition utilizing songwriting and audio production software. Diverse software tools are employed to explore a wide range of musical styles and forms. Fundamental concepts of musical parameters, forms, and aesthetics; the basics of MIDI and digital audio; and Western, popular, non-Western, and experimental song-forms are studied.

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 11

Teaching (continued)

Towson University

“Using Information Effectively in Music” (MUSC 100). Fall 2006, Fall 2008. This newly re-designed course approaches writing and research in music through the study of diverse scholarship in music analysis and criticism, ethnomusicology, popular music studies, music theory, computer music, music perception, and related studies. Topics in notation, digital audio, MIDI, and alternative music representations are also discussed.

“Independent Research in Music” (MUSC 493). Spring 2007, Fall 2007, Fall 2008, Spring 2009. Supervised independent research projects in concert hall acoustics; mixing, mastering, and tube amplifiers; comparative analysis of drum-set microphone techniques; synthesis and signal processing systems in Pure Data.

Approved Course Proposals

Towson University

“Creative Music Instrument and System Programming” (MUSC 206). An introduction to specialized music programming languages with applications in developing musical performance instruments or sound installation works. No prior programming experience is required.

“The Technological Foundations and Culture of Hip-Hop.” A study of the foundational history of hip-hop in the 1970s and 1980s, focusing on the details of the technologies employed and how these technologies contributed to the development of musical culture and practices. Numerous technologies and artists will be studied, as well as the social, political, and economic contexts that gave rise to these musical and technological traditions.

“The Social Construction of Technological Systems in the Arts.” This seminar applies tools from the field of science and technology studies to the specific domain of technologies used in the arts, evaluating the economic, political, cultural, and aesthetic conditions and consequences of these systems. Concepts examined include theories of technological consumption and agency, the idea of technological determinism, reverse salients, the social construction of artifacts, and the process of technological stabilization.

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 12

Assistant Teaching

Queensborough Community College (Adjunct Assistant Professor)

“Recording Techniques I: Studio Equipment” (ME-D270). Fall 2002, Spring 2003, Fall 2003, Spring 2004, Fall 2005, Spring 2006. This course studies function, applied principles, and practical usage of recording studio hardware in a lab-based studio setting.

New York University (Graduate Assistant)

Washington Square Computer Music Studio

Studio Administrator. Fall 2000, Spring 2001, Fall 2001, Spring 2002. Studio administration and development of a four-computer, multi-platform computer music studio. Assisted in purchasing, expansion, and maintenance of digital audio software and hardware. Tutored undergraduates and graduate-students in digital audio and computer music software. Recorded department concerts and engineered multi-channel computer music concerts.

New York University (Teaching Assistant)

“Computer Music Composition” (G71.2165). Spring 2002. Assisted graduate students with individual projects in synthesis and algorithmic composition, teaching languages such as Sound, Max/MSP, and Python, as well as fundamentals of digital audio, MIDI, and mixing with software including Pro Tools, Digital Performer, and Cubase.

“Elements of Music” (v71.0020). Fall 2001, Spring 2002. This course studies music fundamentals, sight singing, ear training, and elementary tonal theory and analysis.

Research & Performance Projects

music21 (2009-present), Lead Programmer

Comprehensive design and implementation of a software system for symbolic music representation and computational musicology, developed in collaboration with Michael Cuthbert and funded by a grant from the Seaver Institute. The system provides input via MusicXML, MIDI, ABC, Musedata, and Humdrum, and output via MusicXML, MIDI, and LilyPond; a wide range of tools for musical manipulation, analysis, graphing, transformation, and representation; and an integrated corpus of thousands of searchable works.

Sonofact (2011-present)

Objective C (Cocoa Touch) iOS “dictionary and taxonomy of music technology” app. Employs a SQLite data store and unique hierarchical navigation views.

ArachneWarp (2010-present)

C++ signal generators designed for creative and unconventional modular synthesis informed by techniques of generative and algorithmic composition.

ArachneMicro (2011-present)

A collection of Arduino/C++/Atmel AVR control signal generators designed for generative and algorithmic composition on the Arduino platform.

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 13

Research & Performance Projects (continued)

Martingale (2009-present)

High-level library of Pure Data abstractions for creating real-time performance instruments and signal processors. Numerous instruments are provided employing a variety of synthesis techniques and interfaces, such as game pads, iPod/iPad (via TouchOSC), and MIDI.

athenaCL (2000-present)

Modular algorithmic music composition system in a Python-based, interactive, command-line environment, featuring over 80 specialized algorithmic generators and output via Csound, MIDI, SuperCollider, and other formats. Described by Dave Philips in *Linux Journal* as “the most comprehensive system that I’ve used for algorithmic composition...its feature set is rich in familiar and unusual resources.”

The Mobile Sound Studio for Teaching and Learning at MIT (2011-2012)

Designed, implemented, and assembled a portable 16-channel input/output audio system featuring a variety of preamps and microphones, monitoring systems, and custom-designed cases for quick setup and tear down of recording sessions in any location.

algorithmic.net (2002-present)

This web site provides a comprehensive resource for computer aided algorithmic music composition and related research in generative art systems, including over one thousand research listings, over one hundred system listings, cross referenced links to research, links to software downloads and documentation, and web-based tools for searching and filtering the database.

KIOKU (2006-present)

The experimental trio KIOKU creates a new terrain between traditional Asian music and collaborative improvisation. The trio utilizes East and Southeast Asian percussion (Japanese taiko, Korean gongs, and Filipino kulintang), live electronics, and saxophones, and has performed in New York City (including the Rubin and Noguchi Museums and the Vision Festival XIII), Baltimore (The Red Room), Charlottesville, Richmond, San Francisco (Edgetone New Music Summit), Stockton, San Jose, and Los Angeles. The trio was selected as Artists in Residence for the Fall 2007 season at the Issue Project Room, Brooklyn, New York. KIOKU’s premier CD, *Both Far and Near* (2007), was described in *All About Jazz* as “fiercely aggressive in its crusade for a powerful, liberated music that takes the great tradition of free jazz and steepes it in Japanese spirituality.”

Live electronics performance and improvisation (2008-present)

Solo and collaborative performances in live electronics. Performances include a featured performance at Share, New York City, with Paula Matthusen and KithoZoid (2008), recordings with Towson’s New Interfaces for Music Ensemble (2008), and a solo performance at Cabinet, Brooklyn, into artist Wendy Jacob’s performative sculpture, *Waves and Signs*, a vibrating platform for the experience of tactile sound (2010).

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 14

Research & Performance Projects *(continued)*

Audio mastering (2006-present)

Professional audio mastering, specializing in experimental acoustic and electro-acoustic music. Notable complete albums include the following. For Quiet Design Records: KIOKU, *Both Far and Near* (2007); *RESONANCE, Steel Pan in the 20th Century* (2007); *The Language Of* (2008); *Spectra: Guitar in the 21st Century* (2009). For Carrier Records: GBL, *Drone Level Orange* (2009); Wet Ink Ensemble, *New Works for Small Ensemble* (2009); Architeuthis Walks on Land, *Natura Naturans* (2010).

Post-Ut (2006-2009)

Post-Ut is a free, web-based, on-line sonic measure ear training system. Post-Ut teaches the language and metrics of sound and sonological study. Questions, using both multiple choice and free response, test selection and identification of frequency in Hertz, amplitude and dynamic range in decibels, rhythm and time in milliseconds, semitone and quarter-tone intervals, and spectral density. All questions employ audio examples drawn from a large database of high-quality, algorithmically-generated and processed audio files, employing both synthesized synthetic sounds and processed acoustic sounds from The Freesound Project. Post-Ut provides aural training for computer musicians, audio engineers, and sound designers. Post-Ut is programmed in Python and MySQL; audio examples are generated with athenaCL and Csound.

envl.net (2006-2009)

This website provides eleven web-based, server-side tools for music creation. High level, easy-to-use interfaces permit creative experimentation with generative rhythms, melodies, canons, harmonies, stochastic event structures, and Xenakis sieves. Output is generated with athenaCL and provided to the user as standard GM MIDI files or athenaCL XML files.

babelcast-zoetrope (2005-2009)

The babelcast-zoetrope is an algorithmic, computer-generated video podcast series created from fragmented and distorted sounds and images of U.S. and World leaders. Juxtaposed and mixed with dynamic noise textures, the resulting ambient soundscape offers a unique musical perspective on mass media, language, and current events. This video version adds algorithmically selected and manipulated moving images and animation. Each edition is built exclusively from sounds and images harvested within a defined period of days.

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 15

Works List

2011

Work II

for six or more live electronics performers with laptops and dual-analog gamepads, ca. 9 minutes

Work III

for six or more live electronics performers with laptops and dual-analog gamepads, ca. 7 minutes

Stillchime No. 1

wall-mounted, interactive, electro-acoustic, generative musical automata

2010

pulsefact #2

improvisation for live electronics, ca. 9 minutes

2009

to leave the best untold

for voice and eight-channel real-time signal processing, ca. 15 minutes

telequalia

for stereo digital audio via RSS, 2 episodes

babelcast-zoetrope

for multimedia via RSS, 4 episodes

2008

endless ladders streaming in eternity

for bass clarinet and eight-channel real-time signal processing, ca. 8 minutes

equinoctial worms

for stereo digital audio, ca. 1 minute

telequalia

for stereo digital audio via RSS, 8 episodes

babelcast-zoetrope

for multimedia via RSS, 10 episodes

2007

demiurgic ecstasy whispering in streets of ear

for eight-channel digital audio, ca. 13 minutes

telequalia

for stereo digital audio via RSS, 17 episodes

babelcast-zoetrope

for multimedia via RSS, 13 episodes

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 16

Works List (continued)

2006

phanopoeiac

for stereo digital audio, ca. 8 minutes

babelcast-zoetrope

for multimedia via RSS, 24 episodes

babelcast

stereo digital audio via RSS, 35 episodes

2005

metalloidesque electronico-clankered

for two percussionists and real-time signal processing, ca. 13 minutes

babelcast

stereo digital audio via RSS, 27 episodes

2004

onomatopoeticized

for stereo digital audio, ca. 9 minutes

2003

moloch whose name is the mind

for taiko and digital audio, ca. 9 minutes

chudaiko, shime, chappa, stereo digital audio

lathe

for stereo digital audio, ca. 16 minutes

swarmmeme

for quadraphonic digital audio, ca. 8 minutes

fog dream neon'd

for taiko ensemble and real-time signal processing, ca. 9 minutes

3 chudaiko, 2 shime, chappa, atarigane, hyotans, computer, stereo audio

2002

ubu imperator

for trio and quadraphonic digital-audio, ca. 9 minutes

bs cl, vlc, tbn, quadraphonic digital audio

agoralalia

for quadraphonic digital audio, ca. 8 minutes

2001

nylon lunula

for guitar solo, ca. 9 minutes

the square perfected has no corner

for percussion quartet, ca. 8 minutes

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 17

Works List (continued)

2000

holy the bop apocalypse

for quintet, ca. 9 minutes
tn sax, bs cl, pno, perc, cb

1999

telophase

for percussion quartet, ca. 10 minutes

comma

for large ensemble, ca. 18 minutes
2 fl, afl, 2 cl, bscl, 2 tbn, bs tbn, perc (2), pno, 2 vc, cb

1998

io paeon

for small ensemble and baritone-countertenor, ca. 14 minutes
fl, cl (bs cl), perc (1), vln, vc, cb

till dim gone

for chamber orchestra and baritone-countertenor, ca. 8 minutes
2 fl, 2 ob, 2 cl, 2 bs, 2 hn, 2 tot, 2 tbn, perc, vln, vla, vc, cb, baritone-
countertenor

1997

denouement

for string quartet, ca. 9 minutes

1996

variation

for piano solo, ca. 15 minutes

half

for violoncello solo, ca. 3 minutes

tempio

for oboe and contrabass, ca. 4 minutes

1995

three songs

for baritone and piano, ca. 5 minutes

landscape

for electronic tape and narrator, ca. 4 minutes

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 18

Technical Proficiency

Domain-Specific Programming Languages

Csound, Max/MSP, Pure Data, SuperCollider, AppleScript

General Programming Languages (and Frameworks)

Python (PIL, matplotlib, numpy, Sphinx, Django, Orange), C++ (STL, Boost), Objective C (Cocoa, Cocoa Touch)

Data Formats and Databases

SQLite, MySQL, XML, YAML, JSON

Web Tools

Django, JavaScript (jQuery), XHTML, CSS, CGI

Audio Engineering

Extensive experience, dating from 1990, in audio recording and music technology. Mastery of all professional audio software and hardware components for studio and live production. Extensive experience recording soloists and ensembles in performance environments and recording studios. Experience in professional, multi-room recording studio management, operation, design, and installation. Professional audio post-production experience in audio mastering. Practical and extended experience with a wide range of professional microphones.

Music Production Software and Hardware

Complete knowledge of digital audio workstations, MIDI sequencers, and notation software, including Pro Tools, Digital Performer, Logic, Cubase, Peak, Finale, and Sibelius. Extensive experience with MIDI and audio hardware installation and configuration. Extensive experience with control surfaces and input devices including the Digidesign ICON D-Command.

**Christopher
Ariza**

ariza@flexatone.net
www.flexatone.net

page 19

Professional Service

- 2011: Invited to evaluate European Research Council Advanced Grant proposal in Physical and Engineering Sciences
- 2011: Invited to referee compositions for the 2011 International Computer Music Conference
- 2010: Invited to chair session at the 2010 International Computer Music Conference
- 2010: Invited to referee two articles for the *Computer Music Journal*
- 2010: Invited to referee articles for the 2010 International Computer Music Conference
- 2009: Invited to referee compositions for the SEAMUS/ASCAP Student Commission Competition
- 2009: Invited to referee articles for the 2009 International Computer Music Conference
- 2009: Invited to referee an article for the *Computer Music Journal*
- 2008: Invited to referee articles for the 2008 International Computer Music Conference
- 2007: Invited to be part of the scientific and program committee for the Music-AL: Workshop on Music and Artificial Life, part of 2007 European Conference on Artificial Life, Lisbon, Portugal.
- 2006: Invited to referee an article for the *Computer Music Journal*

Institutional Service

- 2008-2009: Towson University
 - Honors College Curriculum Committee, member
 - Middle States Accreditation Working Group 1B, Fair Practices, member
 - University Information and Instructional Technology Committee, secretary
 - COFAC Information Technology Committee, chair
 - Music Department Faculty Search Committee, member
 - Music Department RSTUDM Policy Committee, lead writer
- 2007-2008: Towson University
 - University Information and Instructional Technology Committee, secretary
 - COFAC Information Technology Committee, chair
 - Music Department Rank Committee, member
 - Music Department Faculty Search Committee, member
 - Music Department RSTUDM Policy Committee, lead writer
- 2006-2007: Towson University
 - University Information and Instructional Technology Committee, secretary
 - COFAC Information Technology Committee, member
 - Music Department RSTUDM Policy Committee, lead writer

Professional Affiliations

- American Music Center (AMC)
- Audio Engineering Society (AES)
- The College Music Society (CMS)
- International Computer Music Association (ICMA)
- Society for Electro-Acoustic Music in the United States (SEAMUS)