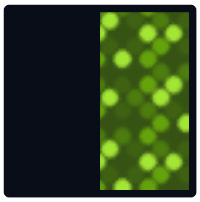
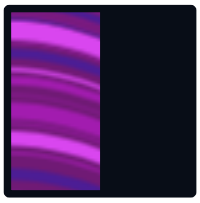


flexatone.net

works of Christopher Ariza



Code

Having programmed in Python since 2000, I have created and contributed to numerous open-source tools for both music and data processing.

Featured Code

> *My passion for writing fast and maintainable Python DataFrame code led to the creation of StaticFrame, an immutable alternative to Pandas.*

StaticFrame

A library of immutable and grow-only Pandas-like DataFrames with a more explicit and consistent interface.

2018 to present

Python, NumPy

Code (GitHub)

Documentation

API Search

> *For three years at MIT I implemented the foundations of music21, a leading tool for analyzing and generating symbolic music.*

music21

A Toolkit for Computer-Aided Musical Analysis and Computational Musicology.

2009 to 2012

Python, MusicXML, MIDI

Main site

Code (GitHub)

All Code

StaticFrame

A library of immutable and grow-only Pandas-like DataFrames with a more explicit and consistent interface.

2018 to present

Python, NumPy

Code (GitHub)

Documentation

API Search

ArrayKit

Python C Extensions for StaticFrame.

2020 to present

C, NumPy C API, CPython API, Python, NumPy

Code (GitHub)

ArrayMap

Dictionary-like lookup from NumPy array values to their integer positions.

2023 to present

C, NumPy C API, CPython API, Python, NumPy

Code (GitHub)

FrameFixtures

Use compact expressions to create diverse, deterministic DataFrame fixtures with StaticFrame.

2020 to present

Python, NumPy

Code (GitHub)

StaticFrame API Search

Search and explore the StaticFrame API.
2023 to present
TypeScript, React

staticframe.dev

Code (GitHub)

function-pipe

Tools for extended function composition and pipelines in Python.
2014 to 2017
Python

Code (GitHub)

Documentation

music21

A Toolkit for Computer-Aided Musical Analysis and Computational Musicology.
2009 to 2012
Python, MusicXML, MIDI

Main site

Code (GitHub)

Articles

Featured Articles

My writings in software engineering, Python, and algorithmic music composition have been published in journals, conference proceedings, and popular publishing platforms.

> *This article demonstrate complete DataFrame type hinting for both static analysis and run-time validation.*

Type-Hinting DataFrames for Static Analysis and Runtime Validation

2023

Read the Docs

Medium

> *This recent article provides a concise demonstration of why immutable data matters for DataFrame performance.*

The Performance Advantage of No-Copy DataFrame Operations

2022

Read the Docs

Medium

All Articles

Type-Hinting DataFrames for Static Analysis and Runtime Validation

2023

Read the Docs

Medium

The Performance Advantage of No-Copy DataFrame Operations

2022

Read the Docs

Medium

One Fill Value Is Not Enough: Preserving Columnar Types When Reindexing DataFrames

2022

Read the Docs

dev.to

StaticFrame from the Ground Up: Getting Started with Immutable DataFrames

2022

Jupyter Notebook (via Binder)

Using Higher-Order Containers to Efficiently Process 7,163 (or More) DataFrames

2022

Read the Docs

Medium

Ten Reasons to Use StaticFrame instead of Pandas

2020

Read the Docs

dev.to

Boring Indices & Where to Find Them: The Auto-Incremented

Integer Index in StaticFrame

2019

Read the Docs

Medium

Two Pioneering Projects from the Early History of Computer-Aided Algorithmic Composition

Computer Music Journal 2011

MIT Press

The music21 Stream: A New Object Model for Representing, Filtering, and Transforming Symbolic Musical Structures

Proceedings of the International Computer Music Conference 2011

Download PDF

Analytical and Compositional Applications of a Network-Based Scale Model in music21

Proceedings of the International Computer Music Conference 2011

Download PDF

music21: A Toolkit for Computer-Aided Musicology and Symbolic Music Data

Proceedings of the International Society for Music Information Retrieval Conference 2010

Download PDF

Modeling Beats, Accents, Beams, and Time Signatures Hierarchically with music21 Meter Objects

Proceedings of the International Computer Music Conference 2010

Download PDF

The Interrogator as Critic: The Turing Test and the Evaluation of Generative Music Systems

Computer Music Journal 2009

MIT Press

Sonifying Sieves: Synthesis and Signal Processing Applicatinos of the Xenakis Sieve with Python and Csound

Proceedings of the International Computer Music Conference 2009

Download PDF

Python at the Control Rate: athenaCL Generators as Csound Signals

Csound Journal 2008

Download PDF

Serial RSS Sound Installation as Open Work: The babelcast

Proceedings of the International Computer Music Conference 2007

Download PDF

Automata Bending: Applications of Dynamic Mutation and Dynamic

Rules in Modular One-Dimensional Cellular Automata

Computer Music Journal 2007

MIT Press

The Xenakis Sieve as Object: A New Model and a Complete Implementation

Computer Music Journal 2005

MIT Press

Navigating the Landscape of Computer-Aided Algorithmic Composition Systems: A Definition, Seven Descriptors, and a Lexicon of Systems and Research

Proceedings of the International Computer Music Conference 2005

Download PDF

An Open Design for Computer-Aided Algorithmic Music Composition: athenaCL

Ph.D. Dissertation, New York University 2005

Download PDF

Ornament as Data Structure: An Algorithmic Model based on Micro-Rhythms of Csángó Laments and Funeral Music

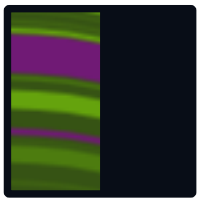
Proceedings of the International Computer Music Conference 2003

Download PDF

Prokaryotic Groove: Rhythmic Cycles as Real-Value Encoded Genetic Algorithms

Proceedings of the International Computer Music Conference 2002

Download PDF



Talks

I have given presentations at numerous national and international conferences, both in music and software engineering.

Featured Talks

> *My recent SciPy compares a variety of approaches to optimizing NumPy routines in Python C-extensions.*

Out-Performing NumPy is Hard: When and How to Try with Your Own C-Extensions

SciPy 2023

SciPy

Video

> *My 2022 PyCon USA talk describes a novel approach to using Numpy's NPY binary format to encode complete DataFrames, with performance faster than Parquet.*

Employing NumPy's NPY Format for Faster-Than-Parquet DataFrame Serialization

PyCon USA 2022

Video

All Talks

Out-Performing NumPy is Hard: When and How to Try with Your Own C-Extensions
SciPy 2023

SciPy

Video

Building NumPy Arrays from CSV Files, Faster than Pandas
PyCon USA 2023

PyCon

Video

Employing NumPy's NPY Format for Faster-Than-Parquet DataFrame Serialization
PyCon USA 2022

Video

Why Datetimes Need Units: Avoiding a Y2262 Problem & Harnessing the Power of NumPy's datetime64
PyData Global 2021

Video

The Best Defense is not a Defensive Copy (lightning talk starting at

18:25)
PyData LA 2019

Video

Fitting Many Dimensions into One The Promise of Hierarchical Indices for Data Beyond Two Dimensions
PyData LA 2019

Video

A Less Kind, Less Gentle DataFrame (lightning talk starting at 53:00)
PyCon USA 2019

Video

StaticFrame, like Pandas but safer
TalkPython['Podcast'] 2019

Podcast

StaticFrame: An Immutable Alternative to Pandas
PyData LA 2018

Video

Music Composed

Starting in the mid 1990s I composed experimental music in a variety of mediums,

Featured Music Composed

including acoustic, electronic, and computer music.

> *A goal of this work was immersive textures of color and noise. To this day I enjoy the immersive space this work creates.*

phanopoeiac (2006)

for digital audio

Reciprocal reaction between background and foreground motivates both movement and stasis in this composition. The title of this work, relating to the poetic evocation of image, is taken form Allen Ginsberg's 1961 poem "Television Was a Baby Crawling Toward That Deathchamber." Source material, excluding both natural and artificial noise, is drawn from studio recordings of the steelpan performed by Darren Dyke.

Tools used in this composition include the algorithmic composition system athenaCL, synthesis systems Csound and Max/MSP, and various other software and hardware. This composition is made available as part of the 2007 CD release RESONANCE: Steel Pan in the 21st Century.

Hide

Download Audio (mp3)

> *One of my favorite acoustic compositions, this work explores a variety of rhythmic environments.*

the square perfected has no corner (2001)

for percussion quartet

This work aspires to anti-development and anti-lyric, to textural and formal circumvolution. The title is transliterated from Lao Tzu.

Hide

Download Audio (mp3)

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All Music Composed

agoralalia (2002)

for quadraphonic digital audio

This work is an exploration of rhythmic speech-sounds, combining constantly changing rhythmic streams into a polyphonic network. The composition employs sounds created and composed with a variety of software tools, including Csound, Max/MSP, SoundHack, and athenaCL. Much use is made of an extension to the athenaCL system employing genetic algorithms in the production of rhythmic variants, as well athenaCL's quadraphonic panning capabilities. Sounds sampled and synthesized with these tools are then composed, mixed, and further processed in a digital audio workstation.

Hide

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comma (1999)

for large ensemble

Or this is a work composed for five trios, a sort-of cubed pierrot ensemble. The instrumentation inspires the form: the work moves without pause between five sections, each morphing one into the other, yet each an isolated textural manifesto. A culmination of previous experiments in harmony, this work demonstrates a very free use of aggregate completing ordered content groups, a marriage of the textural freedom of functional harmony and the harmonic diversity of post-tonal and non-western theory. Or this is a new minimalism, a maximalist minimalism, a synthesis of the rhythmic and textural vocabulary of minimalism (along with a sympathy for the audience and popular musics) with the complexity, at all levels, so admired by the mid-century avant-garde. Or this is a work exploring the comma, the gap, either in the circle of fifths, in the caesura of a phrase, in the cycling of a polyrhythm or in the instrumental isolation of poly-texture. Or this is a work of tension, the tension of linearity, the tension of expectation. The tension between foreground and background, content and form. So-called melody dissolves into so-called harmony, as the music flips between so-called gesture and so-called process. Or this is a work offering more than a singular relationship with the listener.

Hide

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denouement (1997)

for string quartet

This is a work of polyphony and texture: rhythmic polyphony, melodic polyphony, looking both backward and forward at polyphony itself; polyphony generating texture, polyphony creating, within three contrasting textures, an intricate weave.

Hide

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density21.5 (1999)

This work began by assembling non-linear cells from the prelude to darkness project. These cells were then arranged and given a quasi-dramatic (anti-) narrative, similar to the use of text in io paean. Textual samples are taken from a sermon broadcasted by radio in Cambridge, MA, and the narration of a Latin setting of Oedipus Rex.

The form of the work is a diluted moment-form: each section (cell) of the work is an independent harmonic and textural entity, yet dovetails with adjacent sections. Cells communicate with each other in both directions, cells recalling and foreshadowing textures, rhythms, and timbres. Most cells are created with tala-like rhythmic ostinati, often combining and superimposing odd meters.

Hide

Download Audio (mp3)

till dim gone (1998)

for chamber orchestra and baritone-countertenor

Download Score (pdf)

fog dream neon'd (2003)

for taiko ensemble and real-time signal processing

This work is an interactive composition: the live performers play composed music, while a computer system, monitoring the performance with microphones, creates new music in response. The real-time computer music system produces musical accompaniment with various synthesis methods, as well as processed micro-samples captured from the microphones. Rhythms and melodies generated by the computer system are, at times, pre-composed, and other times, generated algorithmically in response to the performers.The title of this work is taken from Allen Ginsberg, a poet whose observations of the last century have a growing relevance in the beginning of this century.

Hide

Download Audio (mp3)

Download Score (pdf)

holy the bop apocalypse (2000)

for quintet

This composition attempts to develop an idiomatic language for the concert hall based on rhythm, texture, and design. I turned to Allan Ginsberg's 1955 "Notes on Howl" for the title; the beats and bebop, like hip-hop, provide inspiring examples of triumphant idiomatic languages.

Hide

Download Audio (mp3)

Download Score (pdf)

io paean (1998)

for small ensemble and baritone countertenor

The text for this work was compiled from Samuel Beckett's short novel, Worstward Ho, written in english in 1983. The form of the work draws heavily from the discongrous and irregular form of the text itself, shifting rapidly between disparate textural extremes. The voice follows/creates these extremes, employing extended falsetto passages and rhythmic spoken word, in addition to the regular baritone voice.

Hide

Download Audio (mp3)

Download Score (pdf)

lathe (2003)

for digital audio

This work, developed as part of a collaboration with TaikoProject, employs numerous digitally processed

and manipulated samples of taiko instruments. Rhythmic structures are both newly-composed and composed elaborations of compositions performed as part of TaikoProject. The large scale shape of the work is imagined as a sort of garden, the listener strolling between diverse locations, each a different perspective of taiko sound-space. The title refers to the wood-working tool used to shape a taiko drum from a tree.

Thanks to Wynn Yamami, Soh Daiko, Bryan Yamami, and TaikoProject for audio samples employed in this work.

Hide

Download Audio (mp3)

nylon lunula (2001)

for guitar solo

The importance of the finger-nail in classical guitar performance cannot be under-estimated. A guitarist must take great care to shape the nail appropriately, the resulting interaction with the string being the main determinant of articulation and tone. When I was young I discovered that numerous coats of a nylon-fortified nail-polish did great things for my tone. Often guitarists will go to elaborate measures to repair their nails if damaged before a gig, occasionally resulting in grotesque hybrids of nail and acrylic bonded with cyanoacrylate. I imagine this interaction of the synthetic with the organic as parallel to the interaction

of creative-intent with six strings, four fingers, and four finger-nails.

Hide

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metalloidesque electronico-clankered (2005)

for two percussionists and real-time signal processing

This work explores a mixture and a juxtaposition of metric, semi-metric, and ametric materials, from both acoustic and digital sources. The score for this work employs an indeterminate, bi-temporal representation. Five equal-duration segments are given for each player in each of ten sections. Although the number of segments within each section is specified, each player may independently and freely choose segments. In addition, a large-scale dynamic contour is specified for each section. The real-time signal processing system, based on the amplitude and density of acoustic events, produces up to eight polyphonic textures or gestures. The title of this work is taken from Allen Ginsberg's 1961 poem "Television Was a Baby Crawling Toward That Deathchamber." This recording was realized with performances by Payton MacDonald and Jason Treuting.

Hide

Download Audio (mp3)

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phanopoeiac (2006)

for digital audio

Reciprocal reaction between background and foreground motivates both movement and stasis in this composition. The title of this work, relating to the poetic evocation of image, is taken form Allen Ginsberg's 1961 poem "Television Was a Baby Crawling Toward That Deathchamber." Source material, excluding both natural and artificial noise, is drawn from studio recordings of the steelpan performed by Darren Dyke.

Tools used in this composition include the algorithmic composition system athenaCL, synthesis systems Csound and Max/MSP, and various other software and hardware. This composition is made available as part of the 2007 CD release RESONANCE: Steel Pan in the 21st Century.

Hide

Download Audio (mp3)

demiurgic ecstasy whispering in streets of ear (2007)

for 8-channel digital audio

This work is an exploration in textural hocketing and extended temporal design. The eight-channel digital audio explores three superimposed layers of dynamic signal assignments of source material to both output and channel-specific time-based

processors. Tools used in this composition include the algorithmic composition system athenaCL, synthesis systems Csound and Max/MSP, and various other software and hardware. The title of this work is taken from Allen Ginsberg's 1960 poem "Aether."

Hide

Download Audio (mp3)

equinoctial worms (2008)

for stereo digital audio

This work is an exploration in four-part polyphony. Independent lines shift between foreground and background through contour, hocket, and mixture. Synthetic sound sources are generated and transformed with athenaCL, Csound, Max/MSP, and various other software and hardware. The title is taken from Allen Ginsberg's 1977 poem "Haunting Poe's Baltimore." This work is included in the Vox Novus 60x60 (2009 / International Mix).

Hide

Download Audio (mp3)

moloch whose name is the mind (2003)

for taiko and digital audio

This work takes its title from section II of Allen Ginsberg's 1956 "Howl", in which the author asks, "What sphinx of cement and aluminum bashed open their skulls and ate up their

brains and imagination? / Moloch! Solitude! Filth! Ugliness! Ashcans and unobtainable dollars! Children screaming under the stairways! Boys sobbing in armies! Old men weeping in the parks!" Ginsberg uses Moloch, an ancient deity whose worship required the sacrifice of children, as an icon for the sickness of the modern mind.

This work opposes the Molochian hegemony through the development of polyrhythm and cyclical form. The odaiko (big drum), shime-daiko, and chappa (hand cymbals) are combined with digital sounds produced from other instruments of the taiko ensemble. These sounds are composed, processed, and synthesized through various tools including the algorithmic composition system athenaCL. Additional processing and synthesis is done with Csound, Max/MSP, SoundHack, and various other software and hardware.

Hide

Download Audio (mp3)

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onomatopoeticized (2004)

for digital audio

This work explores merged discontinuities and scattered continuities. The title is taken from Allen Ginsberg's 1969 poem "Northwest Passage." The form of the work seeks a balance between forward propulsion and frictional

resistance. The algorithmic composition system athenaCL is used to deploy polyphonic textures made of sound shards, short samples larger than grains. Repertories consisting of hundreds of these short samples, algorithmically extracted from sound files of recordings done in Tokyo and elsewhere, are recomposed into horizontal and vertical textures. The sieve theory of Iannis Xenakis, also implemented in athenaCL, is used to create pitch groups and polyphonic rhythmic canons. Additional processing and synthesis is done with Csound, Max/MSP, SoundHack, and various other software and hardware.

Hide

Download Audio (mp3)

the square perfected has no corner (2001)

for percussion quartet

This work aspires to anti-development and anti-lyric, to textural and formal circumvolution. The title is transliterated from Lao Tzu.

Hide

Download Audio (mp3)

Download Score (pdf)

swarmmeme (2003)

for quadraphonic digital audio

This work is an exploration of heterophony and ornamentation, employing specialized algorithms

created for the algorithmic composition system athenaCL. Additional processing and synthesis is done with Csound, Max/MSP, SoundHack, and various other software and hardware. The title refers to the swarm-like cultural instinct to follow.

Hide

Download Audio (mp3)

to leave the best untold (2009)

for voice and 8-channel real-time signal processing

This composition sets Walt Whitman's text, "Carol of Words," for solo voice and eight-channel live electronics. Versions of this text were published in 1856 and later under the titles "Poem of The Sayers of the Words of The Earth," "To the Sayers of Words," and "A Song of the Rolling Earth." This composition is the first setting of the complete text. The text is deployed as improvisatory spoken word, composed rhythmitized speech, and song. The signal of the voice, captured by a microphone, is used to trigger, process, and transform the sounds of the voice and synthetic timbres. This electronic accompaniment, dynamically allocated to eight channels, supports, contrasts, and overwhelms the voice. Performance and interpretation by Gerald Philips.

Hide

Download Audio (mp3)

ubu imperator (2002)

for trio and quadraphonic digital-audio

This work, through diverse textural settings, explores polyrhythm and polytexture. The progression of the work is towards greater compartmentalization and polyrhythmic distinction between sound sources. This progression, on some levels, functions as a metaphor of the power relations suggested by both textual quotations (from protests and politics), and the works title (from Max Ernst's 1923 painting of the same name). This title, in turn, is a play on the title of Alfred Jarry's 1896 political and social satire, Ubu Roi.

At the same time, this work is a portrait of New York City. Samples of streets in the Lower East Side, of Grand Central Station, of the 6 train in Union Square, of World Economic Forum protests in Central Park, and of the media chatter of post 11 September politicians all capture a view of the city.

Sounds are composed, processed, and synthesized through various tools including the algorithmic composition system athenaCL. Additional processing and synthesis is done with Csound, Max/MSP, SoundHack, and various other software and hardware.

Hide

Download Audio (mp3)

Download Score (pdf)

variation (1996)

for piano solo

This piece, in the broadest sense, a set of six variations on a theme. Yet the theme, rather then functioning as a mold for each subsequent variation, is abstracted to a minimum set of components. Each variation reconstructs these components freely, with little regard to their origin. Premiered by David Horne at the annual Thelma E. Goldberg concert, Paine Hall, Harvard University.

Hide

Download Audio (mp3)

Download Score (pdf)

wabisabi (2000)

for digital audio

This work was scored and rendered entirely in csound. Smooth metallic timbres are juxtaposed with noise and formant modeled hybrids. The work is a miniature and, in size and in content, is intentionally understated. The title alludes to the Japanese aesthetic of the same name.

Hide

Download Audio (mp3)

Voltage-Control Patch 16 (2014)

Analog voltage-control patch.

Hide

Download Audio (mp3)

Voltage-Control Patch 9 (2013)

Analog voltage-control patch.

Hide

Download Audio (mp3)

Work III (2011)

for six or more live electronics performers with laptops and dual-analog gamepads

Textural contrast and density are critical attributes of this piece. Heterophony is used as a context for polyrhythm and polytexture.

The performers are divided into three groups. The large-scale form is organized into a sequence of timed scenes, defined for each group by textual instructions and programmed sound sources and systems. The performers, however, are constantly improvising: they are given both direct performative control and higher-level process control. Improvisation is combined with numerous levels of algorithmic control, from shaping low-level stochastic synthesis to manipulating and combining high-level dynamic patterns. Each performer uses only a dual-analog gamepad, the interface controlling multiple sound sources and changing its functionality for each scene of the work.

This work is designed to be open and portable. The complete cross-platform control and synthesis system,

implemented as part of the Martingale Pure Data library, is open source and distributed freely. Numerous varieties of dual-analog gamepads are supported. Audio samples used in this work were obtained from The Freesound Project, and are licensed under the Creative Commons Sampling Plus 1.0 License.

This piece was premiered by students of 21M.380, Live Electronics Performance Practices, a course taught by the composer and offered by the MIT Music and Theater Arts section. This studio recording was created by the composer, performing each part one at time.

Hide

Download Audio (mp3)

Work II (2011)

for six or more live electronics performers with laptops and dual-analog gamepads

This work moves through three contrasting sections. Variations in density and tension, formed by contrasts in speed, continuity, and gesture, are the focus. Performers vary control between direct articulations, generative textures, and improvisatory gestures.

This piece was premiered and realized by students of 21M.380, Live Electronics Performance Practices, a course taught by the composer and offered by the MIT Music and Theater Arts section. This is a live recording of a performance.

Hide

Download Audio (mp3)

puslefact #2 (2010)

for live electronics

The pulsefact pieces are prepared improvisations for solo live electronics. The emphasis is on controlling and developing polyrhythm and polyphony in a live electronics context. The performer operates a wide array of input devices (e.g. joysticks, sliders, and buttons) to deploy, mix, and process samples, digital and analog synthesis, and self-sampled playback.

Hide

Download Audio (mp3)

guido's windchime (2000)

algorithmic composition for MIDI instruments

This work is an algorithmic composition created with Max/MSP. Large scale form, certain rhythmic ostinati, and the general texture of the work are composed into the algorithm. The user can set and store settings including hexachord, four pitch field transpositions, octave displacements, cannon delays, and midi assignments for five (or more) instruments through as many as 8 channels. Tempo, rhythm, velocity (dynamics), panning (stereo position), reverb depth, and the timing of each harmonic and rhythmic event is controlled by the algorithm. The results are quite musical. Two mp3

"performances" are available for download.

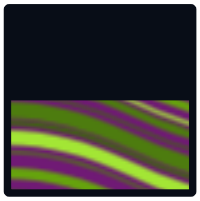
Hide

Download Audio "A" (mp3)

Download Audio "B" (mp3)

Download Audio "C" (mp3)

Download Audio "D" (mp3)



About

More about this site.

Biography

Christopher Ariza is a software engineer, software architect, and leader of engineering teams. He is presently Partner and Chief Technology Officer at Research Affiliates, a global leader in investment strategies and research. He is the creator and lead developer of StaticFrame, a Python DataFrame library built on an immutable data model.

Having worked in Python for over 20 years, he has developed tools in a variety of domains, including algorithmic music composition and computer-aided musicology, and has spoken at numerous conferences, including PyCon USA, PyData Global, PyData Los Angeles, and numerous other venues.

As Visiting Assistant Professor of Music at MIT from 2009 to 2012, he taught courses in music technology and was lead developer of the music21 system for computer-aided musicology. He has served as Assistant Editor at the Computer Music Journal and, from 2006 to 2009, on the faculty of Towson University as Assistant Professor of Recording Arts and Music Technology.

As a composer he has created computer and acoustic music for a variety of mediums and performed live-electronics with the ensmble Kioku. His compositions have been performed and distributed around the world.

He studied at Harvard University (AB), New York University (MA, PhD), and, under a Fulbright grant, at the Institute of Sonology, where he researched generative music systems and computer-aided algorithmic composition.

Hide

Site History

The first version of this site (v1) was titled Matrix (long before the movies by the same name), created in raw HTML, and published on a Harvard University server in 1996. The design of that site was inspired, in part, by a project called The Black Harlequin Space.

In 1999 and 2000 the flexatone URLs

were acquired and a new site (v2) was created. Essential design components from the earlier site were maintained. From 2000 onward the original HTML was incorporated into a custom Python framework to permit flexible site generation. In 2007 this new Python-based framework was used to redesign the site (v3).

In 2011 (v4) the site was redesigned again in a strictly hierarchical form. The custom Python framework was replaced with a Django backend.

In 2023 (v5) the site was reimplemented using TypeScript and React as an interactive single-page-application.

Hide

About the Flexatone

A flex-a-tone is a modern percussion instrument (an indirectly struck idiophone) consisting of a small flexible metal sheet suspended in a wire frame ending in a handle. A wooden knob mounted on a strip of spring steel lies on each side of the metal sheet. The player shakes the instrument with a trembling movement which causes the beaters to strike the sides of the metal sheet. While shaking the handle,the musician makes a high or low-pitched sound due to the curve given to the blade by the pressure from his thumb. A tremolo is thus produced.

An invention for a "flexatone" occurs in the British Patent Records of 1922

and 1923. In 1924 the Flex-a-tone was patented in the USA by the Playatone Company of New York, at 113-119 Fourth Ave., New York City. This website has no affiliation with the Playatone Company.

Hide