

Emergent Phenomena

for TACETi Ensemble

Commissioned by the IntAct Festival, Bangkok

by

JASON THORPE BUCHANAN

EQUIPMENT:

Guitar:

Big Muff Fuzz Pedal
½ or ¼ cello bow
Multipedal or separate delay, reverb, noise suppression, and volume pedals
Honeyspoon
Two foldback paper clips
Egg vibrator with wired control unit (on/off switch)

Sixth string drop C-sharp

Trombone:

Bass trombone with D and F attachments
Harmon mute
Straight mute
Bassoon mouthpiece

Tech:

2 condenser microphones
1 dynamic microphone (Shure SM57)

Additional microphones for dry amplification (directly through board) recommended, particularly for guitar amp

Macbook Pro with Max/MSP, M1 Max or higher level processor.
Minimum 4 channel audio interface with at least 2 outputs

Max Patches and externals available only through the composer.

Emergent Phenomena

Jason Thorpe Buchanan

P.1

Dec. 9, 2023
(Rev. 1, Dec. 25, 2023)

D

A. Sx. (42w) (Eb) C.7" into microphone pulsing, sempre legato

Tbn. (79w) (Eb/Cb) C.9" C.11"

Elec. 008 "Feedback Thing" DSP, randomized presets in Arx more complication

E-Gtr. w/ tip of bow (4x) I.V. H.S. floss I.V. H.S. floss bounce tip of bow on top of the stem of honey spoon

E

C.11" (44w) Bb Eb

Hold until E-bow overwhelms the space, then suddenly cut off 10-15"

approx. 25" Stuttering, erratic irregular rhythms ad libitum

II/3. F.IV/4. D.I/5. F.IV/5. II/3. III/2.

pp p mp up cont'd ad lib. Stuttering, erratic irregular rhythms ad libitum

009 010 electronic playback Stuttering DSP approx. 25" Improvise rhythmically with volume knobs, pickup switch, and hand dampening

E-bow 0

Viol remove honey spoon silently delays continue... include a few long beats & vibrato with D string by pressing on end at heelstick on tailpiece "reverse fades" w/ hand dampening

Viol remove E-bow silently delays continue...

ad libitum

Dec. 9. 2022

A. Sx.

Tbn.

Elec.

E-Gtr.

T

A

B

I

A. Sx. Tbn. Elec. E-Gtr.

3/4 016 out of control 2 4 5 8 017 glitch stutter cut delays 018 019 3/4 4 4 6 4 5 9 020 16 5 4

T A h5 - I.V. B h4 - I.V. 7 tailpiece bend (8th time remove hang/slop) h5 - I.V. h4 - I.V. h9 - I.V. h7 - I.V. h12 - I.V. h12 - I.V.

Big Muff ON

(take liberties to change with each repetition)

headstock bend/press II/2. I. headstock bend/press II/2. I. headstock bend/press

J

A. Sx. Tbn. Elec. E-Gtr.

9/8 021 022 delays, feedback 3/4 023 4 9/8 024 2/8 025 5/8

T A h12 - I.V. B h4 - I.V. 0 as slowly as possible Mspars (Max Vol.) Shift to normal playing position take Vibrator turn on freely, improvising duration, tremolo, rhythm, dissonance, Feedback with Vibrator I & II clip remove

*improvisations should become more wild and extended between harmonics with each repetition

Dec. 9, 2023 (rel. 1, Dec. 25, 2023)

M

a tempo = c.38

A. Sx.

Tbn.

Elec.

E-Gtr.

N

AD LIBITUM

AD LIBITUM

more electronics

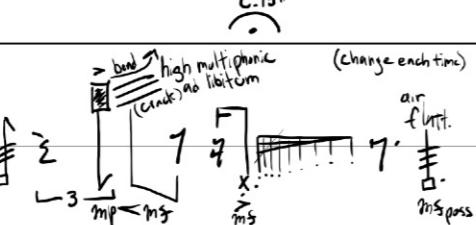
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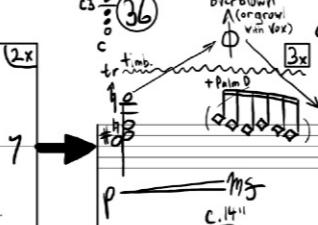
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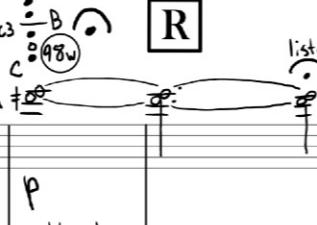
FEEDBACK

Q

A. Sx. 

Tbn. 

Elec. 

E-Gtr. 

R

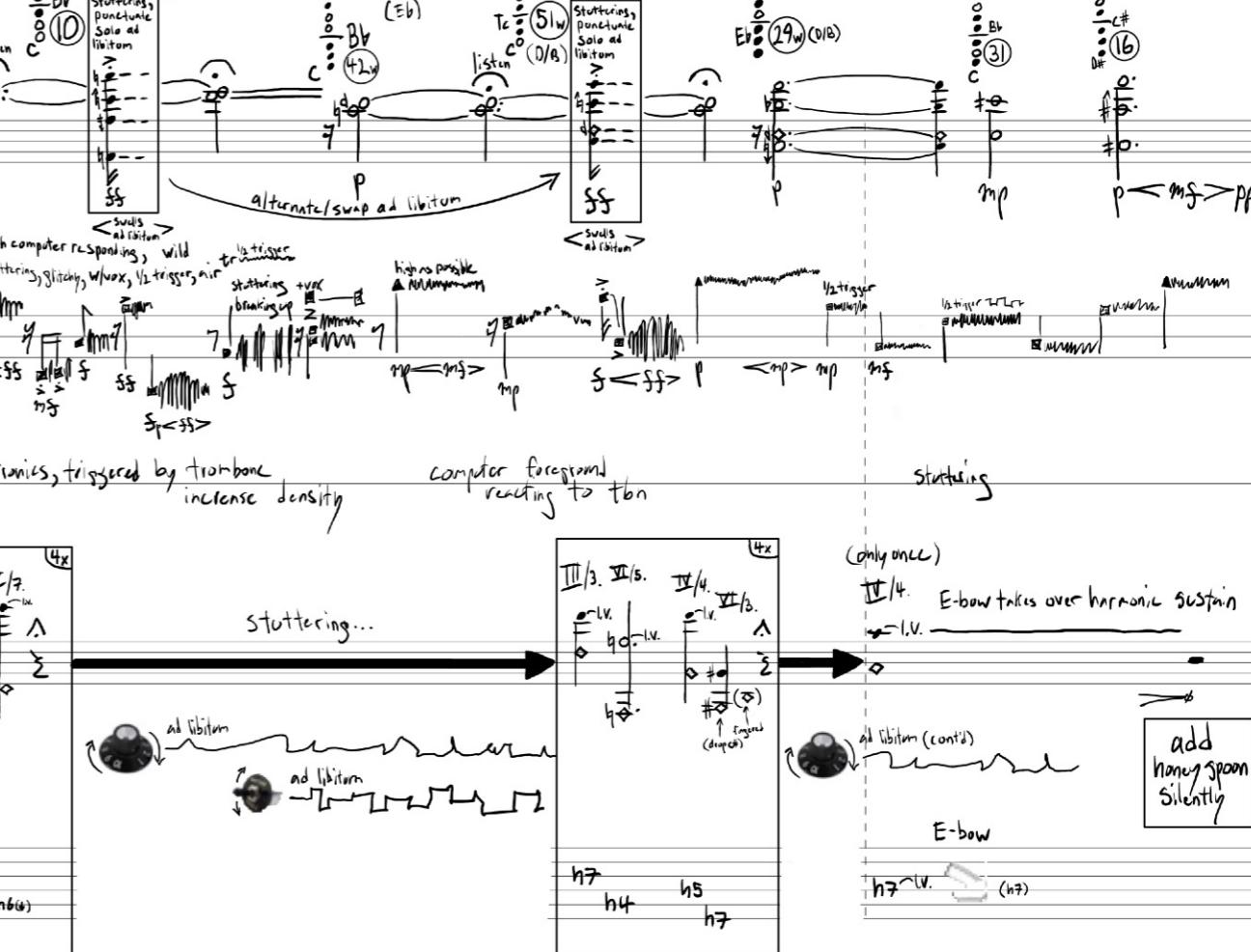
041 Changes in processing turning on/off disruption/glitch slightly more distortion

042 Wild electronics, triggered by trombone increase density computer foreground reacting to tbn

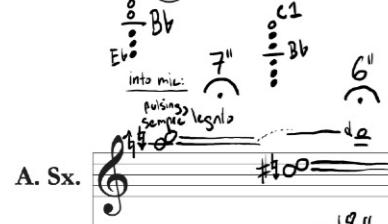
stuttering

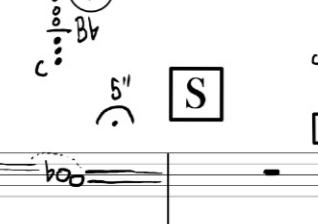
(only once) II/4. E-bow takes over harmonic sustain

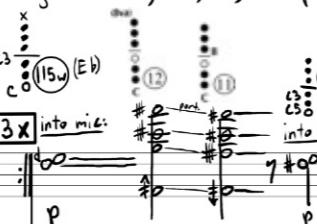
add honey spoon silently



S

A. Sx. 

Tbn. 

Elec. 

E-Gtr. 

T

043 softer

044 soft

045 less processed

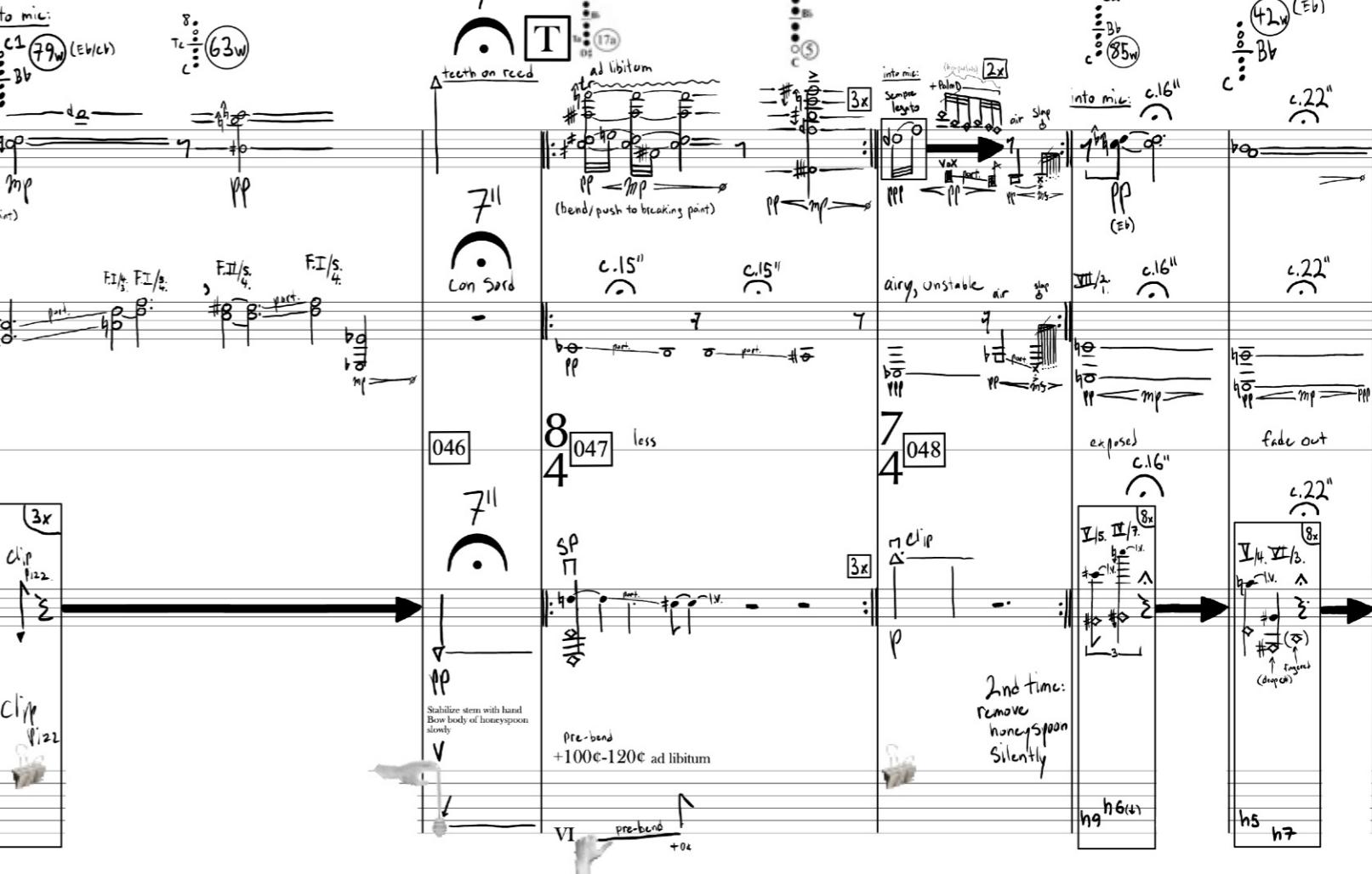
046

047 less

048 exposed

fade out

2nd time: remove honey spoon silently



Emergent Phenomena for the TACETi Ensemble was composed in November of 2023, following the development of a sophisticated system for real-time structural analysis of live microphone inputs. A trio for alto saxophone, trombone, and electric guitar, the electronics are entirely generative, using a self-training machine learning system. A clustering algorithm alongside an index of data from rapid analysis searches for temporal points of spectral self-similarity across all three microphone inputs. When patterns in harmonic spectra, amplitude, and other musical parameters are recognized, the system gradually learns from what it hears and classifies these sonorities to create a temporal map of musical ‘objects’ in the work. This perpetually growing store of data is used to respond to the musicians accordingly with generative material. Four layers of generative electronics take place: Each “novel” sound that the computer perceives is immediately recorded into a series of perpetually recording buffers, which are categorized and written to disk. When the computer perceives a match between past and present, it retrieves the samples written at each point in the past to perform a variety of manipulations, based upon what is heard in the present moment. Secondly, based on the amount of time that has elapsed since the matching sample was taken, how many times it has occurred, and the spectral and musical characteristics of each “object”, the computer will combine discrete pre-recorded samples to generate a composite sound in response. Thirdly, each of the three microphone signals are processed according to perceived patterns and sonic data, such as amplitude, density of musical activity, or frequency spectra. Lastly, a variety of other processes are performed both on the input from the musicians, and from the sounds generated by the system itself. In each moment, this may result in new material similar to what is performed by the musicians, or new material in stark contrast to what it perceives, a dynamic, mercurial system which is learning and changing with each passing moment.

This work was conceptualized while recovering from an injury in the Summer of 2023 outside of Berlin. Inspired by the lasting neurological effects this injury had on my body, which was contorting itself to protect my spine from further injury, I was struck by the behavior of my own human body as a complex system that in fact, I had little control over. Correspondingly, I felt renewed interest in developing new systems of interactivity between human musicians and machines. My goal was to create a work that does not rely on temporal synchronicity between electronics and the musicians, such as a click track or precise soundfile triggering, nor sensors and gestural tracking, but rather a system which truly responds to the spontaneous and nuanced details of the musical material itself, and the ways in which these sounds unfold over time to create complex networks. – Jason Thorpe Buchanan

“The emergence of life and intelligence from less-alive and less-intelligent components has happened at least once. Emergent behavior is that which cannot be predicted through analysis at any level simpler than that of the system as a whole... Emergent behavior, by definition, is what’s left after everything else has been explained.” — George Dyson



Jason Thorpe Buchanan is an American composer of operatic, orchestral, chamber, electroacoustic, and intermedia works which explore fragmentation, multiplicity, intelligibility, behavior, and the integration of live performance with technology. He is Artistic Director of the [Switch~ Ensemble] and Artistic Associate/Lecturer in New Media and Digital Technologies for Music at the Hochschule für Musik Carl Maria von Weber Dresden, Germany in the Hybrid Music Lab. He served from 2018-2022 as Department Chair/Lecturer in Composition, Theory, and Electroacoustic Music at the College of Music, Mahidol University in Thailand, 2022 Interim Managing Director of the Mizzou New Music Initiative at the University of Missouri, and 2020 Visiting Lecturer in Composition/Interim Director of the Electronic Music Studios at the Butler School of Music, University of Texas at Austin. His works have been described as “an unearthly collage of sounds”, “sharply-edged”, and “free jazz gone wrong—in a good way.”

Jason is the recipient of a 2010-11 Fulbright Fellowship at the Hochschule für Musik und Theater in Hamburg, Germany as a visiting scholar, commissions from the Mizzou International Composers Festival for Alarm Will Sound (2013), Iktus Percussion (2013), the International Horn Society for the Eastman Musica Nova Ensemble, soloists Jeff Nelsen, Michael Walker, and conductor Brad Lubman (2014), Ensemble Nikel/Tzlil Meudcan (Israel, 2014), the Blue Water Chamber Orchestra as winner of Iron Composer (2014), the NY Virtuoso Singers (2015), the Earle Brown Music Foundation for the Talea Ensemble and TIME SPANS Festival (NYC, 2017), the Thailand New Music and Arts Symposium for the TACETi Ensemble and augmented conductor (2019), and for TACETi and extended no-input mixer (2020), a fellowship and commissions from Royaumont for the Talea Ensemble+EXAUDI Vocal Ensemble (2016), and the Académie Voix Nouvelles Ensemble (2017), a German/American Fulbright Commission (2011), the Howard Hanson Orchestral Prize (2014), two ASCAP Morton Gould Young Composer Awards (2014 & 2015), an American-Scandinavian Foundation Grant (2015), 2017 Artist-in-Residence at the Brush Creek Foundation (Wyoming), and 2015 Artist-in-Residence at USF Verftet/City Council of Bergen, Norway.

As a nominee for the 2015 Gaudeamus Prize, three works were presented by Insomnio, the New European Ensemble, and Slagwerk Den Haag at Gaudeamus Muziekweek (NL). His works *walkside*, *lost* and *gimme shelter* (2015), commissioned by Gaudeamus for Slagwerk Den Haag and by Eklektro Percussion Geneva, both explore the structural intersection of precise physical gestures, fragile sounds, and speech alongside live audio and video processing. As 2018 Artist-In-Residence at the Embassy of Foreign Artists in Geneva, Switzerland, he developed a new, interactive processing environment for *surface, tension* (2018), responding directly to the discrete physical gestures of performers and governing the behavior of both signal processing and triggering through wearable technology, sensors, and gestural tracking. Scenes from his multimedia opera *Hunger* have received performances at Darmstadt (2014) with Ensemble Interface, The Industry’s FIRST TAKE in L.A. (2015) with wild Up, and the MATA Interval Series in New York City (2015) with the [Switch~ Ensemble]. “*Hunger* is a kind of training session in mental disintegration... An ungodly opera needs ugly music, singers who produce primal sounds, an electric guitar that sounds scraped raw, a wailing orchestra effects, cuts the ear like a knife. Buchanan delivers.” – *L.A. Times*

Mentors have included Ricardo Zohn-Muldoon, Steven Takasugi, Pierluigi Billone, Chaya Czernowin, Raphaël Cendo, David Liptak, Virko Baley, Peter Michael Hamel, Jorge Villavicencio Grossmann, Pablo Furman, and Georges Aperghis. Jason served for three years as Executive Director of the Valencia International Performance Academy & Festival (Spain), for two years as a Curator for the San Francisco Center for New Music, as founding Director of the TICF International Academy for Young Composers, and as a Faculty Artist at the International Composition Institute of Thailand. As a doctoral student, he served as course instructor in electronic music and composition, board member of OSSIA, and assistant conductor for the Musica Nova Ensemble with conductor Brad Lubman at the Eastman School of Music.

As a guest composer, conductor, and lecturer, he is widely sought internationally at institutions such as the University of Chicago, Stanford University, TRANSIT Festival (Belgium), TIME SPANS Festival (NYC), Chamber Music Campania (Italy), the Eastman School of Music, University of Miami Frost School of Music, Music Science Share Educators Conference (Shanghai), Queens New Music Festival, MATA, the Thailand New Music and Arts Symposium, Yong Siew Toh Conservatory (Singapore), the Bergen Center for Elektronisk Kunst (BEK, Norway), and dozens of Universities throughout the United States. He holds a Ph.D. from the Eastman School of Music, and degrees in Composition and Music Technology from San José State University (BM & BA, 2008) and the University of Nevada, Las Vegas (MM, 2010), where he taught courses in composition and theory as a graduate student. Current projects include *Ecology of Disruption* for Line Upon Line, a percussion trio with generative electronics, lights, and video, an immersive collaborative work for the [Switch~ Ensemble] at EMPAC, and development of new systems for gestural tracking and interactivity within the Hybrid Music Lab, Dresden.

For more information or to contact the composer, please visit
www.jasonthorpebuchanan.com

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