

Axel

Chemla--

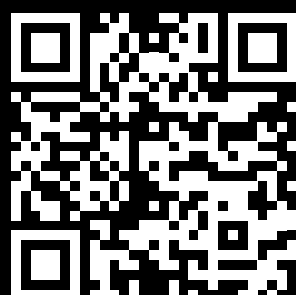
Romeu-Santos

Portfolio

Since my early beginnings, my interests span from trans-disciplinary arts to AI research, including generative art, performance, creative coding, and philosophy / social sciences. Graduated in both music, music theory and engineering sciences, I started working at IRCAM in 2015 on computer-guided improvisation and defended my PhD between *University di Milano* & *Sorbonne Université* on generative audio AI. Besides my academical research, I also graduated in electroacoustic music and got involved in many artistic projects, including composition, music performance, theatre, coding, and video. My work now focuses on research-creation, where I intend to develop scientific and artistic objects that could conjugate these new opportunities with a critical approach. To do that, I work for two years on developing AI approaches for real-time and exploration, from modeling to coding, and focused on developing new methods for AI creation (from interpolation to extrapolation). Besides this research, I keep working with musicians, performers (theatre, circus), and composing, in order to bind current artistic practices and these new developments. Notably, we created with artist fellows a Paris-Marseille collective named *w.lfg.ng*, that we develop to become a intercourse platform on all of these contemporary subjects.

private website

(click on the flashcode to access the corresponding links)>>



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Music

ægo (2019) is a performance that stages a person and a machine that learn to improvise in music. The machine uncertainly explores a spectral latent space, while the person communicates positive or negative reinforcement, turning their hands front or back, in an attempt to teach the machine how to explore this space. Gradually, the person gives up communicating consistent reinforcement to the machine,

leaving the machine's learning undetermined. Freed from the obligation to record their preferences into the machine, the person engages in deep listening through sound, and learns to improvise in music.



Performers : Axel Chemla—Romeu-Santos & Hugo Scurto

« Reality cannot be read ; it can be garnered, be tied up, and at best be swindled. »

aletheia (2022) is a musical piece based on exploring, transforming, hacking, bending, and interplaying with audio and image generative models. Referring to the pre-socratic notion of aletheia, this piece illustrates the discovery of reality of neural audio synthesis models by going from a pure phenomenological perception to an imitation game, yielding to a deranging and coercive version of reality. Besides attempting a reflexive work between philosophical aspects of reality and exploration of model's rules through deviation, aletheia

is motivated by the experimental development of new approaches to compose and interact with neural generative models, and by which new aesthetics they can provide.



Performers : Axel Chemla—Romeu-Santos



from left to right: ægo, aletheia, you will get what you leave behind

you will get what you leave behind(2022) is a mixed performance based on real-time exploration of neural audio synthesis devices. Structured as a triptych, this performance exhibits the complex relationship between these modern technologies and the materiality of their memory, unveiling simultaneously their underlying hantology (in anguish but also in onirism) and their materiality (by their nature jointly real and unreal, living and unliving), thus offering novel monsters, sometimes familiar, sometimes uncanny, if not terrifying.



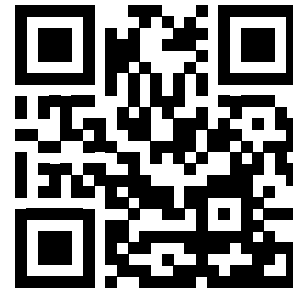
Performers : Axel Chemla—Romeu-Santos & Antoine Caillon

ACIDS Workshops is a series of live shows I initiated @IRCAM with researchers, composers & musicians. The purpose, with this free-entry show, was to offer a *carte blanche* to anyone interested in music making with AI-powered neural synthesis, without any aesthetic exigence but the live encounter between a research team, performers, composers, and their audience. The first edition, that took place in January 2022, was then followed by an edition with circus artists of the CNAC (Centre National des Arts du Cirque), and followed by a second edition in November 2022.



Daim™

listen to every Daim™ albums here >>>



Daim™ is a recreational music project initiated in 2016 within the collective w.lfg.ng, blending maximalist synthesizers and rhythms with post-internet experimentations based on memeification, deconstruction and media saturation. Their musical universe draws generously from their hyperpop, electronica, abstract hip-hop, euro-dance, French house, jazz and avant-garde influences, but also, from sounds coming from advertising, video games, doomscrolling and artificial intelligence. For this release party, Daim™ concocted a DJ dataset, a sort of collective memory of dancing and wild data, having participated in the creation of their albums MINIUI, Natures&Discovery (2022) and ^^ (2021), and serving as a basis for the generation of their next experiences.



wiep (2016 - 2019) is the first epoch of Daim™, frantically hybridizing several electronic sub-genres to generate an aesthetical chaos with a semi-assumed post-digital flavour. Besides the self-titled album, several singles involving B-sides, remixes and radical experiments were available to create a maze showing the chaos hidden behind an album creation. This album was also supposed to be performed live but was cancelled due to the COVID19 breakdown, yielding the ArsElectronica mixtape now available on youtube.



^^ (2021) is a project exploring analog forms of digital expression that memeingly hijack cultural and technical systems associated with pop and art music. Daim™ eponymous EP was deconstructed into a series of dank singles, albums, and video clips (2018–2020), assembling raw audiovisuals from both their personal archives and the internet. For Ars

Electronica 24h Rave, Daim™ will premiere an audio-visual mixtape recounting their web browsing experiments as a burlesque and danceable musical short film. Expect avant-garde jokes, popping-up beats, and many more passive-aggressive leftfield surprises.



MINIUI / Nature&Découvertes (2019 -) are two albums released in 2022. MINIUI, composed three years after the first album signs a drastic radical turn towards brutalist pop music, layering experimental, hip-hop and electro-pop musical elements to provide a disturbing but lavish musical experience. This EP also contains several featurings, notably with Adèle Pécout, bolide international, and Minh Boutin. Its «post-liminal» counterpart, Nature&Découvertes, explore the codes advertisement music by musicking the 24 hours of a sleepless mid-class worker covered by a mythical creative insurance called w.lfg.ng. A «1010th anniversary edition», released in 2023, is a side-album where every track are fed to a generative AI, trained on the Daim™ discography, in an increasing manner of times. This process then yields to progressive vanishing and oblivion, due to the over-normalization of the process performed by the the AI.



Daim™ + LAXE @ ANTICLUB (2022)

is a live caption of a performance that occurred in Cirque Électrique, accompanied by the light collective LAXE. Elaborating their live method based on intensive deconstruction and reconstruction of the two last albums, MINIUI and Nature&Découvertes, Daim™ pursues an epileptical and frenzy approach to sound with a highly versatile and surprising dance setup, alternating uncompromising bangers, dark psychedelics and obstructing advertisements.



duck songs (??? - ???) are incremental remixes of a duck song.

Kenoma

Kenoma is my personal electro-acoustic project, where I merge acousmatic approaches of studio with elements of diverse music styles to have an ambiguous approach of complex feelings such as depression, beauty, or energy. Albums are named after sephiroths, a concept of Kabbalah that represent each a different aspect of God's emanations (that I understand as a holistic facet of the world).



Malchut (2019) is an album I made deeply inspired by the hauntings that vaporwave gave me, between comfort and desperation. I wanted to make an «harsh» version of this music style, where this underlying anguish towards future was displayed rather than suggested. This album is then full of hard-cut and descreted references to the past, evolving through diverse

sonic landscapes that mimic the awareness-rising of the traps of nostalgia and self-enclosure.



Tiphereth (to be published) is an album on beauty, but also on the various countersides these real experiences of bliss imply. With the underlying fight of two entities (incarnating time & eternity), several characters are plunged into the observe effects that beauty provoke, from escaping, boredom, or exhaustion.



listen to Malchut here >>>

Theatre/ Dance

My work in theater, briefly initiated with a performance that took place in *La Manufacture* (Switzerland), became one of my lead activity by integrating the *Théâtre de la Suspension* company in 2017. The objectives of this company, that are immersive theatre with biting aesthetics dedicated to poetry, led me so far to the composition of many exigent live soundtracks : four corners of a square with its center lost (2018), Vestiges de l'Arrière Monde (2019), Fils de Chien (2021), and Les Sept Colis de Nestor Crèvelong (2023). All these soundtracks, different both structurally and musically, allowed me to explore very different performance & live audio setups : spatialization, live music and reactive composition.



four corners of a square with its center lost

They had not seen each other for ten years, Neither the Father, cold, nor Sarah the smallest who stayed, Nor the three others who left. Here they are gathered around a soup. One spoonful, then two, then twenty, and the father collapses, dead. Then begins a long settlement of accounts between the four children, each one brilliant in his way of hurting, denying, keeping silent. Held there by a mysterious force, their dispute is peppered with supernatural and magical phenomena, until the shock when their father suddenly wakes up and decides to embark on a journey to the «underworld», where the scenes, the delusions, the impulses of their past seem to be buried.

In this first piece, that was about create magical illusions to simulate the loss of sense provoked by a brutal death and the intrance in a haunted world, we wanted with my co-composer Mathieu Husson to create a soundtrack that merged onirism with sonic illusions. For that, I developed a surround sound using 8 loudspeakers that were surrounding the Cirque Electrique's big top, spatializing composition and real-time voices in real time using a custom interface. This first work fixed the will of the company to create immersive shows merging immersive sound with staging and scenography.



Fils de Chien (Manifeste autophage -I-)

For one evening, you will be invited to retrace the main events in the life of Le Chien, a mythical half-man, half-beast figure who managed to overturn the last taboos of a society in decline. This story will justify his taste for human flesh, his thwarted love affair with an obese tightrope walker, and the progressive fascination of which he was the object by what was called our Humanity. Inspired by Vladimir Slepian, a mysterious author who probably died of hunger in Paris in 1998, the Théâtre de la Suspension goes in search of his poetic fundamentals. The motif of devouring has gradually appeared as a way to reconsider in an original way our way of making society. Who devours whom? How do we do it? Why do some eat when others are eaten?

This energetic one-man performance, driven by Bertrand de Roffignac, was a real challenge : music was actually his only possible partner. Besides technical challenges (wireless microphones with surrounding water), this creation was also very demanding because of the intense rhythm (managed in real time), the deep intrication with the dramaturgy and the performance, and the delightful baroque-ness of the whole piece. Again with my co-composer Mathieu Husson, we managed to compose for an intense 1h30 show driven by energy, epileptical but profound experience that, both from expectancy and feedbacks, left an memorable impression.

Les Sept Colis sans destinations de Nestor Crévelong

«There are two opposing forces and they are not Evil and Good. It is the Sun and the Accident...»

Nestor Crévelong, famous actor of the propaganda films produced and broadcast by the Unitary Party, deserts his film set determined to get drunk in the hot districts of the capital. He takes the highway interchange of the Hypercentre. At the same time, Basile, a young sociopath escaped from a psychiatric clinic, rides a second-hand motorcycle in the opposite direction. At 2:37 a.m. local time, Basile and Nestor's vehicles collide. Nestor is cut into seven separate pieces when Basile miraculously escapes the accident; when he wakes up, it is Nestor's thoughts that speak through his mouth. With the help of Carmen Stabb, the nurse in charge of his care, they agree to retrieve Nestor's dismembered body from the morgue and cause a series of fatal accidents to set the world in motion.

After Fils de Chien, we had to explore to other narrative intentions while taking the aesthetics that we found promising. To this end, we included music composition since the very beginning of the writing, allowing to create a real go and forth between music and text. With this process, we managed to propose a very energetic show, merging diverse narrative styles and musical aesthetics, trying to find an oniric response to the conflict between conservation and destruction that is tiling our contemporary experience.





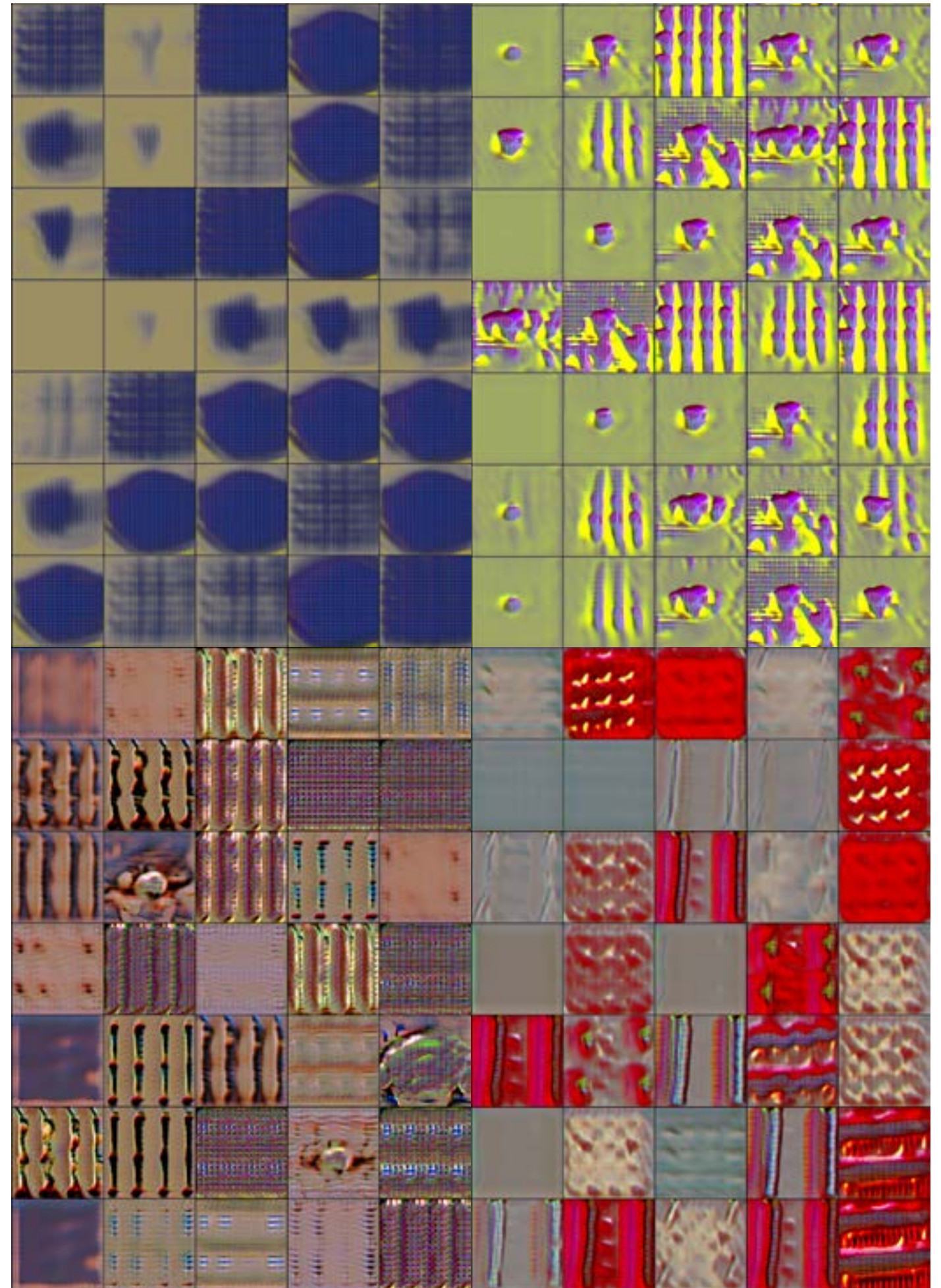
intermediary «video ghosts» created from Tchernobyl archives, used as video material for performance.

Work with documentary scenography

Recently, I also started working with the choreographer Arkadi Zaides on AI scenography in a artistic reseach project on documentary choreography, supported by *La Comédie de Valence*. In this work, we develop ways of incoporating AI elements (real-time generation, pre-generated videos or texts, documentary tools) in performance. This work is really interesting, as it does not use AI solely for modernist and aesthetical intentions but rather for performing the complexity underlying the notion of «facts», that in our contemporary times becomes indeed a joint human-machine endeavour. In this research process, we explore how a humain-AI interaction on stage can actually embrace these complex questions, and how an artistical approach could unveil and display the inner working of these technologies (both taken from custom and industry sources) on stage.

Image / Video

Inception Ghosts [1st Generation] (2022) is a series of AI-generated pictures, that intends to exhibit the veiled criteria of machine-learning based classification algorithms for images (here, Inception). An randomly initialized generator is trained to maximize the objective that classifiers have to maximize to correctly (in a ML-oriented sense) achieve their goals ; this way, the generator can somehow «absorbe» their internal working, providing abstract images that, paradoxically, are maximally classified.





Ontario is a landscape film of Hortense Boulais-lfrène made along one of the roads of the persistent world Second Life: a dive into the virtual urban fabric where malls follow villas. In this film-installation, the naturalist and fictional soundtrack realized from fixed shots tends to reveal the initial absence of noise while seeking to manifest perceptive ghosts in sound «trompe-l'oeil». Through the slight cognitive dissonance caused by the strangeness of the false field-recording, the projection in the actual space is thus an open door to the porosity of these two ordinary worlds to question the often hasty distinction of the «real» and the «virtual».



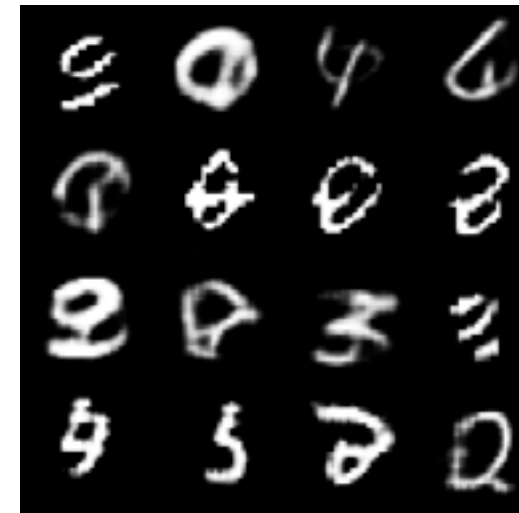
Covers Confinées 2020 is a collaborative work of the w.flg.ng collective, for which I did animation, videos, and musical contents. Initiated during lockdown, we covered songs with associated music videos that we collected as a false TV show, ironically hybridizing vintage elements with the modernity of the crisis.



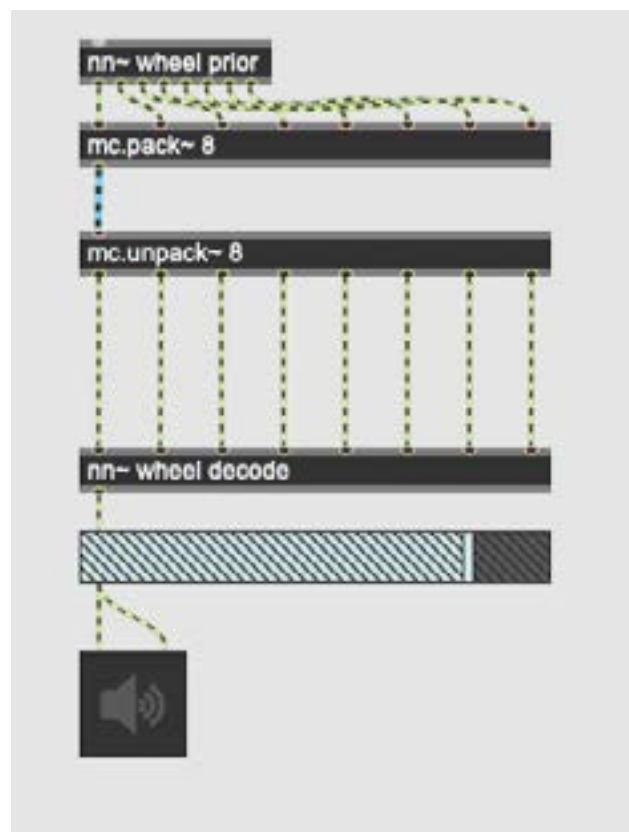
Code



vschaos is a spectral auto-encoders that can be used for long-evolving spectro-morphologies, that can performed in real time using the Max software. This work, that was one of my PhD products and was then one of the first usable real-time AI generative model, was the one used in the aego performance in 2019. I recently re-coded it to be available with modern architectures, providing a lightweight of performing explorative neural audio synthesis.



divergent_synthesis is a proof of concept for a novel training setup for ML generative models based on maximum divergence, trying to foster extrapolation for generation instead of interpolation. In this work, we enforce a model to diverge from its original database to generate new digits.



nn~, initiated by Antoine Caillon that I joined, is a general framework to embed neural audio synthesis in real-time uses for performance, used in most performances using our tools.

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Formation

2010 - 2013 : Double Undergraduate Degree in Sciences & Music Theory

- Engineering Sciences, Université Pierre & Marie Curie.
- Music & Music Theory, Université Paris Sorbonne IV

2013 - 2015 : Postgraduate Degree in Engineering Sciences

- 1st year : acoustics, Université Pierre & Marie Curie
- 2nd year : acoustics, signal processing and computer science applied to music (ATIAM) Sorbonne Universités, IRCAM, Télécom ParisTech

2015 : Business Foundations Certificate (INSEAD)

2016-2018 : Computer Music Degree (CRR93)

2016-2019 : PhD in Computer Science

« Manifold representations of musical signals and generative spaces »

Directors : Goffredo Haus (IT), Gérard Assayag (FR) - Coordinator : Philippe Esling (FR)

LIM - Università Degli Studi di Milano, Milano, Italy

STMS IRCAM - Sorbonne Universités - CNRS, Paris, France

Work experience

2013: Sound Designer for game project *Evazion* with Sophia Antipolis - Cannes

2014: Internship to PuceMuse - *Developing real-time sound morphing devices*

2015 : Internship to **IRCAM** -

Planification guidelines for reactive improvisation

2015 : **Software Designer** for light & sound installation *EXO* with Félicie d'Estienne D'Orves

2016 : **Research Engineer at IRCAM** -

main developer of SoMax reactive improvisation environment

2015 : **Sound Designer** for educational software *GeoVisit*, Université Pierre & Marie Curie

2016 - 2017 : **Sound Engineer / composer** *Four Corners of a Square with its Center Lost*,
Théâtre de la Suspension

2017 : **electro-acoustic coordinator** for re-creation of *L'Esprit des Dunes*, Université Paris 8

2019 - 2020 : Post-Doctorate (ACIDS-IRCAM)

2020 - 2021 : Research Fellow (VEOS Digital)

2021 - 2022 : Post-Doctorate (ACIDS-IRCAM)

Workshops

- **2022** : *New Tools for Musical Creativity with Neural Audio Synthesis*, NIME2022 (coordinator & speaker)
- **2022** : *ACIDS Workshop Alpha*, Cirque Électrique (coordinator & performer)
- **2022** : *Cirque Laboratoire*, Cirque Électrique with students from Centre National des Arts du Cirque (coordinator & performer)
- **2022** : *ACIDS Workshop Gamma*, Cirque Électrique (coordinator & performer)

Publications

- Chemla-Romeu-Santos A. & Esling P., Creative divergent synthesis with generative models (arXiv)
- Chemla-Romeu-Santos A., aletheia, AIMC2022 (musical paper)
- Chemla-Romeu-Santos A. & Esling P., Challenges in creative generative models: a divergence maximization perspective, AIMC2022
- Chemla-Romeu-Santos A., Représentations variationnelles inversibles: Une nouvelle approche pour la synthèse sonore, JIM, 2020
- Chemla-Romeu-Santos A., Scurto H. aego. CMMR, 2019.
- Chemla-Romeu-Santos A., Scurto H. Machine Learning for Computer Music Multidisciplinary Research: A Practical Case Study. CMMR, 2019.
- Esling P., Masuda N., Bardet A., Despres R., Chemla-Romeu-Santos A. Universal audio synthesizer control with normalizing flows. DaFX Proceeding 2019 (2019)
- Chemla-Romeu-Santos A., Ntalampiras S., Esling P., Haus G., Assayag G. Cross-Modal Variational Inference for Bijective Signal-Symbol Translation. DAFX Proceedings 2019 (2019).
- Esling, p., Chemla—Romeu-Santos, A., Bitton A. Generative Timbre Spaces: Regularizing Variational Auto-Encoders With Perceptual Metrics , DafX Proceedings 2018 (2018)
- Esling, P., Chemla—Romeu-Santos, A., Bitton, A. Bridging audio analysis, perception and synthesis with perceptually-regularized variational timbre spaces , arxiv.org (2018)
- Bitton, A., Esling, P., Chemla—Romeu-Santos, A. Modulated Variational auto-Encoders for many-to-many musical timbre transfer arxiv.org (2018)
- Nika, J., Déguernel, K., Chemla—Romeu-Santos, A. DYCI2 agents: merging the " free", " reactive", and " scenario-based" music generation paradigms. International Computer Music Conference (2017)
- Chemla—Romeu-Santos, A. Guidges de l'Improvisation. HAL, Master's thesis (2015)

Development

2015 : **Software Designer** for light & sound installation *EXO* with Félicie d'Estienne D'Orves

2016-2017 : **Research engineer developer of reactive improvisation environment** *SoMax*

2019 : **Creator & developer** of variational synthesis environment *vschaos*

2022 : **Contributor** to *nn~*, interface between ML systems and Max

2022 : **Developer** of RAVE AU / VST

Music / Performance

music / performance

2018 - : co-composer and producer in maximalist electronic trio **Daim**

2019 - : co-founder of musical design collective **w.lfg.ng**

2019 - : *aego*, AI-based human-machine performance (with Hugo Scurto, CMMR2019)

2019 : *Malchut*, Kenoma

2020 : producer of *Mer* album

2021 : producer of *Azul Alpha* album

2022 : organizer / Performer of ACIDS Workshop Alpha (AI Music, Cirque Électrique)

2022 : organizer / Performer of Cirque Laboratoire (Circus + AI, Cirque Électrique)

2022 : *aletheia*, piece for hacked AI generators (AIMC2022)

2023 - : *you will get what you leave behind*, AI-based performed triptych on artificial reveries

theatre / cinema

2015 : **Sound Designer** for *Le Maitre et Marguerite*, La Manufacture (Lausanne)

2016 - 2017 : **Composer & Sound Engineer** for *Four Corners of a Square with its Center Lost*, Théâtre de la Suspension (spatial improvisation)

2020 : performer for *Retiens Johnny*

2020 : audio mastering of *Les Iles Périphériques* (Alice Brygo, Fresnoy)

2020-2022 : **Composer & Sound Engineer** for *Fils de Chien (Manifeste Autophage I)*, Théâtre de la Suspension

2020-2023 : **Composer & Sound Engineer** for *Les Sept Colis de Nestor Crévelong*, Théâtre de la Suspension

Languages

French - native

English - common

Italian - common

Deutsch - B2