19th SBCM
Brazilian symposium on computer music

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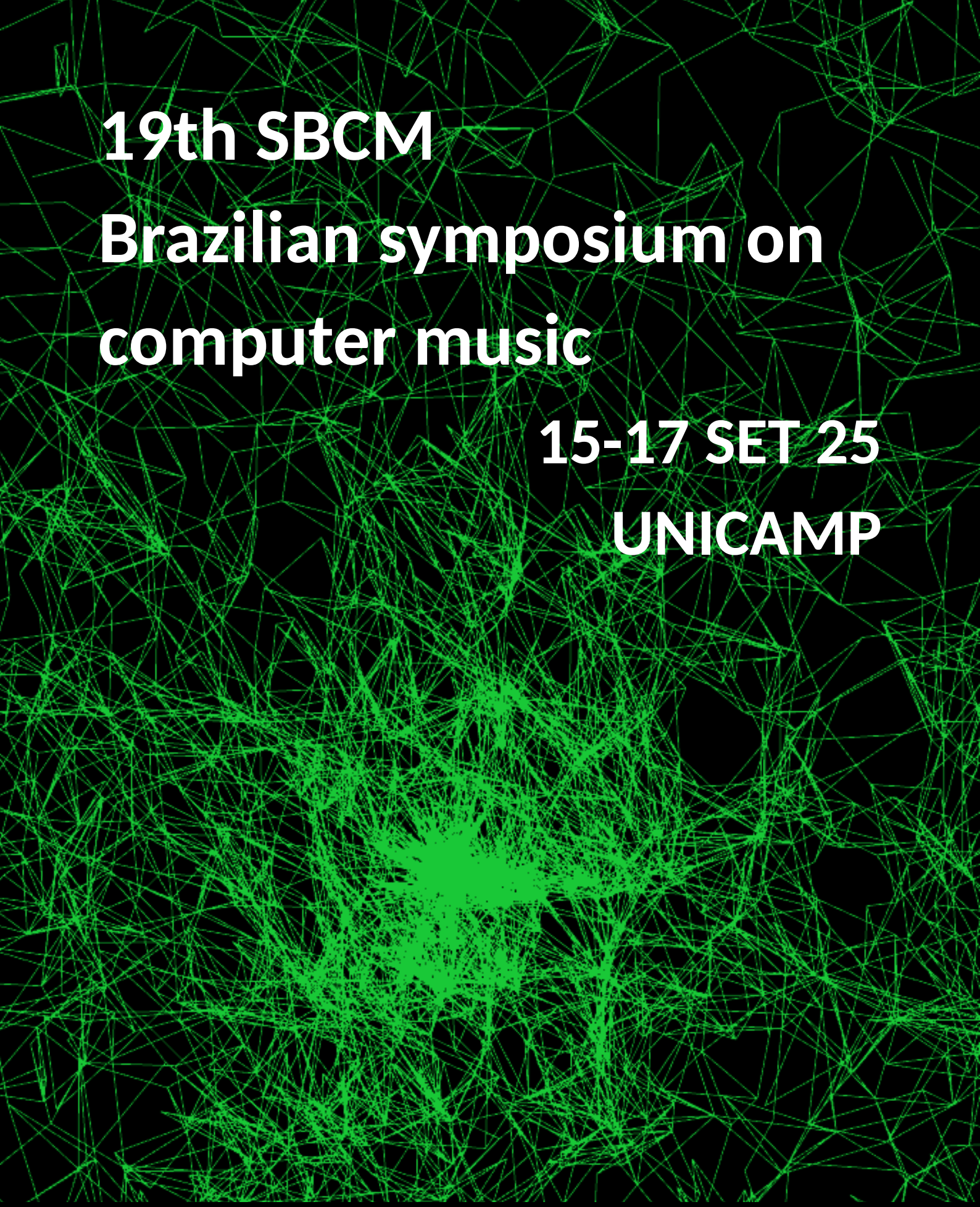

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Guilherme Zanchetta, Pamela Leite, Micael Antunes Image design: Guilherme Zanchetta and Pamela Leite

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About

Brazilian symposium on computer music

SBCM is a biannual event organized by the Computer Music Interest Group (CECM) of the Brazilian Computing Society (SBC). It is an exciting and thriving venue for sharing ideas about recent developments in computer music, sound and music processing, music information retrieval, computational musicology, multimedia performance, and many other topics related to art, science, and technology.

Our intention is to promote a greater diversity of themes, observe innovative techniques and aesthetic orientations on sound as art and computing, in order to contribute to integration, inclusion and cultural diffusion.

19th SBCM

In 2025, the SBCM will be hosted by Interdiciplinary Nucleus of Sound Studies (NICS) at the UNIVERSITY OF CAMPINAS (UNICAMP).

SBCM welcomes articles on all topics related to the intersection between computer science/engineering and music. At the time of submission, authors will be able to include other topics to facilitate the review process and welcome unlisted points.

Machine Learning, Artificial Intelligence, and Music Information Retrieval

Software Development for Musical Applications

Computational Musicology

Musical Cognition and Computer Music

Real-Time Musical Systems for Improvisation and Telematic Performance

Machine Listening and Musical Creation

Audio Signal Processing, Sound Analysis, and Digital Audio Effects

Physical Modeling and Sound Synthesis

Sound Spatialization and Immersive Environments

Organizing Committee

The organising committee is working on the following contributions formats: **Full Papers**, **Performances and Artworks**, **Poster Session**. All the submitted works will be published in the SBCM proceedings and in the SBC Open Library.

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Program

Monday, September 15th

08:30-09:00	**Registration** Centro de Convenções	
09:00-09:30	**Oppening Ceremony** Centro de Convenções	
09:30-10:30	**Software Development for Musical Applications - Session I** Centro de Convenções	**Audio Signal Processing, Sound Analysis, Digital Audio Effects and Physical Modeling** Centro de Convenções
10:30-11:30	**Keynote - Prof. Dr. Markus Noisternig** Centro de Convenções	
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13:00-15:00	**Round Table - Artificial Intelligence and Musical Creativity** Centro de Convenções	
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15:30-16:30	**Real-Time Musical Systems for Improvisation and Telematic Performance** Centro de Convenções	
16:30-17:30	**Software Development for Musical Applications - Session II** Centro de Convenções	**Machine Learning, Artificial Intelligence, and Music Information Retrieval - Session I** Centro de Convenções
18:00-19:00	**2nd ENCM: II Escola Nacional de Computação Musical** Núcleo Interdisciplinar de Comunicação Sonora	
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15:30-16:30	**2nd ENCM: II Escola Nacional de Computação Musical** Centro de Convenções
16:30-17:30	**Machine Learning, Artificial Intelligence, and Music Information Retrieval - Session II** Centro de Convenções
18:00-19:00	**2nd ENCM: II Escola Nacional de Computação Musical** Núcleo Interdisciplinar de Comunicação Sonora
19:30-21:00	**Concert** Auditório do Instituto de Artes

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08:30-09:00	**Registration** Centro de Convenções
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18:00-19:00	**2nd ENCM: II Escola Nacional de Computação Musical** Núcleo Interdisciplinar de Comunicação Sonora
19:30-21:00	**Concert** Teatro de Arena

Abstracts

September 15th

Software Development for Musical Applications - Session I

Note Block Studio: A Music Creation Application for Minecraft Note Block Songs

Bernardo Costa[1], ***Flávio Luiz Schiavoni***[1]

[1]Federal University of São João Del Rei

Note Block Studio (NBS) is an open-source music creation application for desktop computers. It aims to help anyone easily create music for the critically acclaimed video game Minecraft, using blocks that emit musical notes. NBS features an intuitive grid workspace, where a user can arrange musical notes to create songs. These songs can then be exported to a musical circuit, allowing the song to be played in-game. Since its first release in 2011, NBS has gathered a vibrant community with tens of thousands of players and musicians. Many software tools and plugins have been developed to enhance the app's native capabilities, deeply enriching the project's ecosystem. Moreover, advanced compositional techniques have been created to overcome the limitations of note blocks. These advancements have paved the way for hundreds of musical works, visualizations, and even collaborative pieces to emerge around the app, which have reached millions of players through online social platforms and multiplayer virtual worlds. In this paper, we provide an in-depth analysis of NBS and its features, showcase its community, and present some of the modern initiatives powered by the app. We also explore how its strong appeal has helped it secure a strong position within Minecraft's musical community. Ultimately, our goal is to introduce NBS to the academic community, building a strong contextual foundation to support future research and development of its ecosystem.

MNT2: A Longitudinal Evaluation of an Open-Source Mapping Software

Fabián Sguiglia[1]

[1]Universidad Nacional de Quilmes

MNT2 is an open-source application developed in openFrameworks to control synthesizers and audiovisual materials through gestures. It offers interconnectable modules providing strategies based on two-dimensional maps, which can be configured manually or using dimensionality reduction techniques. This article briefly introduces MNT2 and focuses on its evaluation process. It reviews literature on the evaluation of new musical interfaces, discussing both longitudinal and practice-based approaches. These approaches were used to design a study in which five

experienced musicians and sound artists used MNT2 over several weeks, integrating it into their workflows and creative practices. Finally, the article shares the results of this evaluation.

Mixed Reality Approach to Serious Games in Developing Musical Intelligence: A Systematic Mapping Study

Paulo Gabriel Alves Fontana[1], ***Tadeu Moreira de Classe***[1]

[1]Universidade Federal do Rio de Janeiro

This study presents a systematic review investigating the effectiveness of Mixed Reality (MR)-based serious games in fostering musical intelligence, particularly in the domains of rhythm and melody recognition. By applying the SEGRESS methodology, the authors reviewed 466 articles, ultimately selecting 23 primary studies that met stringent inclusion criteria. The review synthesizes findings across several dimensions, including targeted musical skills, user demographics, technological platforms, assessment methods, and measurable outcomes. Results indicate that most MR serious games emphasize receptive and reproductive musical skills, particularly pitch and melody recognition, with rhythm training comparatively underrepresented. Target audiences predominantly consist of beginners and children, and mobile-based Augmented Reality (AR) emerges as a preferred platform for accessibility. Although studies employed diverse evaluation techniques—ranging from pre/post-tests to user feedback—the majority reported positive impacts on musical learning and engagement. However, gaps persist in research involving intermediate and advanced learners, standardized assessments of musical intelligence, and long-term pedagogical outcomes. This review contributes a foundational synthesis of current evidence and outlines future directions for enhancing the integration of immersive technology in music education.

Audio Signal Processing, Sound Analysis, Digital Audio Effects and Physical Modeling

Toward Expressive Timbre Modeling: Convergence of DDSP and Neural Voice Synthesis

Henrique Vaz[1], ***João Pedro Mendes de Oliveira***[1]

[1]Universidade Federal de Juiz de Fora

This article investigates the convergence between Differentiable Digital Signal Processing (DDSP) and neural singing voice synthesis approaches, focusing on the modeling and control of vocal timbre. By integrating explainable acoustic structures with deep learning, DDSP-based models offer interpretable, efficient, and expressive synthesis, overcoming limitations of purely neural architectures such as WaveNet or Tacotron. Analyzing models like the Neural Parametric Singing Synthesizer (NPSS), the article proposes a conceptual and technical framework that highlights recent advances in the explicit separation of pitch, timbre, and prosody. The study discusses implementations using differentiable LPC and FIR filters, hybrid vocoders, harmonic + noise

synthesis, and strategies for timbre transfer and singing voice conversion (SVC). It argues that hybridization between DSP and neural networks marks a new methodological frontier for vocal synthesis — one that is more transparent, controllable, and suitable for expressive, pedagogical, and interactive applications.

PATRICIA: proof-of-concept implementation and validation of a real-time singing synthesizer

Leonardo Brum[1], ***Eduardo Aparecido Lopes Meneses***[2], ***Edward David Moreno***[3]

[1]Universidade Federal da Bahia, [2]McGill University, [3]Universidade Federal de Sergipe

This paper describes the implementation and validation process of PATRICIA, a proof-of-concept prototype of a system that performs real-time singing voice synthesis (SVS) for the Brazilian Portuguese language. A technological mapping was conducted to study the latest industrial developments in real-time SVS and give directions for PATRICIA design and implementation. The implemented architecture is described, and for the validation process, a series of video recordings of the system working was made as a musical demonstration. This demonstration was subjected to an evaluation by musical educators. A performance analysis with two CPU usage indicators was also performed on two different devices. The results of the validation are discussed and future enhancements are pointed out to overcome the current limitations of the system.

Synthesizing Tradition: Physical Modeling and Composition with the Colombian Gaita

Juan Felipe Vasquez Rincon[1], ***Danilo Rossetti***[2]

[1]Universidad Nacional de Colombia, [2]Universidade Estadual de Campinas

This article focuses on the physical modeling of the Colombian gaita using waveguide synthesis techniques. Based on an acoustic analysis of the instrument, the gaitacol object was developed in the MAX/MSP environment to simulate its sound in real time. The resulting synthesis was integrated into the composition "Entre tanto y tanto, un caminar continuo", where the dialogue between the acoustic and digital versions of the gaita explores the convergence of traditional sound and technological processes. This work contributes to the field of computer music by applying physical modeling to a non-Western instrument and proposing creative frameworks for its integration into contemporary composition.

Real-Time Musical Systems for Improvisation and Telematic Performance

Telematic Music: Performance, Somax2 Co-improvisation, and Pedagogical Aspects

Cassia Carrascoza Bonfim[1], ***Danilo Rossetti***[2], ***Mikhail Malt***[3]

[1]Universidade de São Paulo, [2]Universidade Federal de Mato Grosso, [3]Ircam

Between January 2023 and January 2025, we established the Telematic Music Center at the Faculty of Philosophy, Sciences, and Letters at the University of São Paulo (FFCLRP-USP), Brazil. This center supported the research project Telematic Music: Connectivity in Virtual Environments, funded by the São Paulo Research Foundation (FAPESP), which explored telematic performance through music, audio and video technologies, and artificial intelligence. The project culminated in a remotely produced audiovisual album featuring collaborative works by Cássia Carrascoza and Paulo C. Chagas, along with original compositions by Chagas for flute, live electronics, and video. In

partnership with Mikhail Malt, we developed co- improvisations in a virtual space mediated by the AI- driven system Somax2, investigating sound spatialization

and immersive audio environments. Simultaneously, we continued the pedagogical work of the Telematic Ensemble LaFlauta at USP. Together with composer Danilo Rossetti, we implemented an educational initiative on telematic chamber music, offering students practical experience with audio technologies and collaborative performance in virtual settings. The ensemble performed works composed specifically for them by Rossetti, Chagas, Iazzetta, and Carrascoza. This article presents key outcomes of the project, emphasizing the artistic collaboration with Malt and Somax2 and the educational impact of telematic ensemble practice.

Projetopê: a guided free improvisation co-organized through the interactions between human musicians and a digital machine

Stéphan Schaub[1], ***Said Bonduki***[1]

[1]Universidade Estadual de Campinas

Projetopê is a musical improvisation environ- ment in which musicians interact with a digital machine endowed with the capacities to listen, to memorize, to com- municate visual information and to synthesize sounds. The proposal innovates by shifting the focus away from real- time interactions to concentrate on the organization of larger time spans and on the production of a type of guided improvisation situated somewhere between the practice of entirely free improvisation and written, open composition. To achieve this goal, temporal segments are previously de- fined and then dynamically driven by the interactions be- tween the improvisers and the digital machine. In its first implementation, Projetopê presents itself as an “extended score”, materialized by individual computer screens and piloted by a system programmed in Max/MSP. Over the course of the performance the digital machine analyzes pa- rameters such as pitch, register, duration and dynamics. It then uses the information to trigger the transitions between sections of the improvisation (thus making their durations variable) as well as to determine the pitches / harmonies it itself projects, usually between – occasionally also during – these same sections.

Collaborative Dynamics in Electroacoustic Music Creativity: Telematic Dialogues Across Apparatuses

Paulo C. Chagas[1]**, *Ivana Petkovic Lozo***[1]

[1]University of California, Riverside

This paper explores the dynamics of electroacoustic music collaboration within complex technological, social, and philosophical contexts. Focusing on the interplay between human creativity and technical apparatuses, we draw on key theoretical frameworks including Vilém Flusser's concept of telematic dialogue, Jacques Attali's notion of composition as resistance, Martin Heidegger's ontology of art and technology, and Niklas Luhmann's systems theory. Through historical case studies such as the WDR Electronic Music Studio and recent projects like Sound Imaginations: Telematic Immersion, we examine how electroacoustic practices foster new forms of authorship, co-presence, and symbolic ritual. These practices challenge the separation of roles between composer, performer, audience, and machine, proposing instead a participatory paradigm of creative exchange. We argue that electroacoustic collaboration redefines not only music-making but also broader modes of technological engagement, cultural production, and social connection in the digital age.

Software Development for Musical Applications - Session II

From Beat to Bit: Open Music Production in the Underground Scene Authors

Júlio César de Sousa[1]**, *Flávio Luiz Schiavoni***[1]

[1]Federal University of São João Del Rei

The democratization of technology has made independent music production increasingly accessible. However, the early stages of this journey are often marked by difficulties and disorientation, due to the complexity of the processes involved—from ideation to distribution. Proprietary DAWs (Digital Audio Workstations) such as FL Studio and Ableton Live, while widely known and used in digital audio production, present financial barriers due to their paid licensing models. In contrast, free and open-source DAWs like LMMS (Linux MultiMedia Studio) offer significant potential to support independent artists. Their open project formats allow for transparency, adaptability, and the integration of programming logic and musical theory to automate early creative processes. This research aims to analyze file types generated by open-source DAWs and to develop functional tools to support learning and creation in music production, especially within underground or independent scenes. The manipulation of project files through scripts or web interfaces can facilitate project generation based on genres, BPM, or sonic references—enhancing the workflow and creative autonomy of emerging artists.

eScore: An MVP for Solving the Page Turning Problem in Musical Scores Authors

Brandow Buenos Aires[1], ***Rafael Aleixo***[1], ***Fábio Paulo Basso***[1], ***Maicon Bernardino***[1]

[1]Universidade Federal do Pampa

Musical scores remain essential tools in musical practice, yet challenges such as manual page-turning continue to disrupt the flow and quality of performances in collaborative settings like orchestras. This paper presents eScore, a technological solution designed to automatically synchronize digital scores between musicians and conductors, aiming to eliminate interruptions and enhance performance dynamics. The system was developed and experimentally evaluated in real-world scenarios with musicians, focusing on its practical effectiveness. Results demonstrate that eScore successfully mitigates disruptions caused by manual page-turning, promoting greater integration, comfort, and focus among performers. Opportunities for improvement were also identified, including interface refinement and expanded device compatibility. Overall, eScore emerges as an innovative and promising tool to modernize musical practice, offering meaningful advances in collaboration and group performance efficiency.

Enabling Interactive Music Performance through Web Browsers for non-Programmers

Charles Klippel Neimog[1], ***Rodolfo Coelho de Souza***[1]

[1]Universidade de São Paulo

We introduce pd4web, a software platform that allows any musician to use Pure Data (Pd) patches directly on websites, without requiring programming expertise. It eliminates the need to write C code or configure build systems. By enabling Pd to run inside web platforms, pd4web facilitates the performance of electroacoustic and live-electronic works across desktop and mobile browsers. Unlike other tools with similar goals, pd4web is designed not just for programmers, but also for musicians—and especially composers—already familiar with Pd, allowing them to deploy their patches on the web. This expands creative possibilities by making complex electroacoustic works more accessible and reducing the reliance on specialized hardware or software setups. pd4web has been used in compositions such as Improviso I and Cânticos de Silício I, demonstrating its potential for real-time, web-based electroacoustic music with minimal setup. However, issues like latency and performance limitations remain, emphasizing the need for continued improvements in WebAssembly and the WebAudio API for complex real-time audio processing.

Machine Learning, Artificial Intelligence, and Music Information Retrieval - Session I

Understanding genre similarity in Brazilian music through Vision Transformer embeddings Authors

Victoria Guimarães[1], ***João Gustavo Kienen***[1], ***Rosiane de Freitas***[1]

[1]UFAM

This work investigates how musical genre similarity is represented in the latent space learned by a Vision Transformer (ViT) model fine-tuned on Brazilian regional music. We present BYRM, a curated dataset that contains 1,082 tracks across ten culturally diverse genres. Our analysis focuses on the best-performing configuration identified in previous experiments, which uses 10-second segments extracted from the 90 to 120 second excerpt of each track. Mel-spectrograms were used as input to train the ViT, from which time-local embeddings were extracted. Dimensionality reduction techniques (PCA, t-SNE, and UMAP) were applied to visualize the latent space, and cosine similarity was computed to assess inter-genre proximity. The model achieved 81.94% accuracy and 81.84% F1-score under the best configuration, demonstrating its ability to learn discriminative representations. The similarity analysis shows that the ViT effectively captures stylistic relationships between related genres, such as samba and pagode or vaneira and xote gaúcho, while maintaining separation from more distinct styles like Brazilian rock. These findings provide new insights into genre similarity modeling using transformer-based embeddings in a culturally rich and musically complex context.

Representation Matters: An Evaluation of MEL, CQT, VQT, and MCQT for Beat Tracking

Joaquim Breno Brito Cavalcante[1], ***Julio Hsu***[2], ***Carlos Eduardo Batista***[1], ***Telmo Menezes Silva Filho***[3], ***Thaís Gaudêncio do Rêgo***[1], ***Yuri Malheiros***[1]

[1]Universidade Federal da Paraíba, [2]Universidade Federal de Campinas Grande, [3]University of Bristol

Neural beat-tracking models predominantly rely on Mel spectrograms. These representations often fail to capture harmonic nuances in complex genres (e.g., jazz, classical), leading to rhythmically ambiguous sig- nal patterns and suboptimal performance. We challenge the architectural-centric paradigm in music analysis by (1) evaluating alternative time-frequency representations, and (2) proposing a dual-input architecture to synergize complementary spectrogram properties. Through con- trolled experiments, we compare Mel, Constant-Q Trans- form (CQT), and Variable-Q Transform (VQT) inputs. We then introduce MCQT: a dual-branch model that fuses Mel and CQT, validated via 8-fold cross-validation and ensem- ble inference. Replacing Mel with CQT reduced subhar- monic errors by 22% in harmony-rich contexts. MCQT fur- ther outperformed single-input baselines, achieving state- of-the-art annotation coverage (0.912 vs. Mel's 0.910) and reducing subharmonic errors by 26% compared to Mel. It excelled in complex genres (e.g., 6.4% higher downbeat F1-score in classical). Strategic representation engineer- ing, not just architectural complexity, is pivotal for

robust beat tracking. MCQT's fusion of complementary spectro- grams establishes a new paradigm for MIR tasks, particu- larly in harmonically complex music.

Performance Analysis of a Convolutional Transformer-Based Automatic Chord Recognition Model for Extended Chord Qualities

Daniel Antonio de Jesus Melo[1], ***Pedro Augusto Gomes Medeiros***[1], ***Luigi Schmitt***[1], ***Telmo Menezes Silva Filho***[2], ***Yuri Malheiros***[1], ***Thaís Gaudêncio do Rêgo***[1]

[1]Universidade Federal da Paraíba, [2]University of Bristol

Automatic Chord Recognition (ACR) has seen significant advancements with the advent of deep learning, particularly with convolutional transformer architectures. However, a detailed performance analysis, especially concerning their ability to recognize chord qualities, remains an area for investigation. This paper presents an analysis of a convolutional transformer-based automatic chord recognition model for extended chord qualities. We evaluate its accuracy on three benchmark datasets—McGill-Billboard, RWC-Pop, and JAAH—, focusing on root notes and specific chord qualities (maj, min, maj7, min7, 7, hdim7, and 7(b9). Using annotations from the original ground truth files and the CHOCO (Chord Corpus) as a reference, with a duration-weighted evaluation methodology, we conduct an assessment of the model's capabilities. Our results reveal that while the model achieves high accuracy on basic triads, its ability to correctly identify extended chords drops in comparison. We conclude that the model's limitations stem from the underrepresentation of extended chords in common training corpora, underscoring the critical need for more balanced and harmonically diverse datasets to potentially mitigate the reported issues.

September 16th

Musical Cognition and Computer Music

The Mobile Phone Orchestra as a Classroom: Teaching Music with Mobile Devices

Matheus Durães da Cunha Pereira[1]**,** ***Rafael Carvalho Avidago Geraldo*** [1]**,** ***Gabriel Lopes Rocha***[1]**,** ***Flávio Luiz Schiavoni***[1]

[1]Federal University of São João Del Rei

This paper presents a pedagogical proposal for music education using mobile phone orchestras as an educational environment. By integrating mobile technologies with contemporary music teaching methodologies, we explore the potential of smartphones as accessible and versatile digital instruments. The proposal is structured in three main stages: musical experiences with everyday technologies, workshops on creating digital instruments with Pure Data, MobMuPlat, and Mixxx, and the formation of a collaborative orchestra. The theoretical framework is based on the STEAM approach and the concept of Ubiquitous Music (Ubimus), emphasizing sound experimentation, creativity, and cultural inclusion as central pillars. The project was implemented with high school and university lab students, revealing pedagogical gains, technical challenges, and high participant engagement. We observed that transforming the mobile phone into a musical instrument increases access to sound practice and establishes a bridge to formal education. The project also sparked students' interest in traditional music learning methods, demonstrating its potential as a gateway to more structured training. Finally, we discuss the technical challenges faced and future paths for applying the methodology in broader formal educational contexts.

Dimensions on the Perception of Users Towards AI Generated Music

Frederico Pedrosa[1]**,** ***Flavio V. D. de Figueiredo***[1]**,** ***Lucas Ferreira***[2]**,** ***Alexei Machado***[3]**,** ***Ivan Moriá***[1]

[1]Universidade Federal de Minas Gerais, [2]Universidade de São Paulo, [3]Pontifícia Universidade Católica de Minas Gerais

Music-generating Artificial Intelligence has reached a point where one can, be they musician or not, generate full-length songs with just a textual query in a web service. Similar to other recent AI advances, such services have the potential to impact different sectors of arts and industry. In particular, if and how such services will impact our daily lives is a common social debate. Returning to AI-Generated Music (AGM), in this paper, we are interested in the following question: How do musicians and non-musicians perceive AGM services as a tool? For this purpose, a user-centered study is carried out, focusing on themes such as (but not limited to): 1) AGM as a supporting tool in musical composition; 2) the ethical responsibilities of AGM; 3) AGM as a tool in music production; 4) AGM as a tool to foster diverse music and, 5) AGM in music education. The research was based on a quantitative survey that used Exploratory Factor Analysis to understand the underlying patterns of the participants' perception, as well as a thematic analysis of the provided answers. Overall, results show positive trends in participant opinions towards AGM Composition and Production. In particular, a Latent Profile Analysis unveils two groups of participants. One group, with 77%

of participants, is more enthusiastic towards AGM in composition and production but also more skeptical about ethical concerns. The second, smaller group (23%), has a more negative view of AGM in compositional, production, and ethical aspects. Nevertheless, both groups show some support for AGM in education, indicating a potential. This positive supports endorses AGM as a potentially tool for democratizing music composition and education.

Challenging cognitivism: computational versus embodied and embedded creativity in AI generative music

Matheus Prado Garcia[1]

[1]Universidade Estadual de Campinas

This paper aims to discuss different perspectives on the nature of cognition in relation to artificial intelligence as a tool used by artists in their creative process. We bring forth the debate between two important lines of thought in cognitive science: first, we present a brief overview of the computational and representational theory of mind, which posits that the mind functions similarly to a computer, gathering information through the sensory organs and processing this information by means of an internal, symbolic language. We argue that this cognitive point of view is closely linked to the development of the first artificial neural networks and represents a dominant perspective in the field of artificial intelligence to this day. Then, we discuss the idea of embodied and extended cognition, which differs radically from the first by stating that the process of acquiring knowledge is carried out not solely by the brain, but by the entire organism, engaging in constant exchange with its environment through complex mutual modeling. From this debate, we explore the field of generative artificial intelligence by presenting artistic experiences and perspectives in AI-generated music that challenge the cognitivist notion that the brain and computer function in fundamentally similar ways.

A speaking choir of dead people: the making of Recordare

Nicola Bernardini[1]

[1]Scuola di Musica Elettronica - Conservatorio "O.Respighi" Latina (Roma)

This paper is a description of the compositional and realization processes behind Recordare – Madrigale recitato per suoni elaborati, a 7’ minutes-long acousmatic piece that I have created between 1996 and 2001. Recordare features some interesting macro-granular techniques which meet specific compositional and aestheti demands and requirements. Furthermore, while acousmatic its fully automated building process allows for constant rebuilding and adaptation to different spaces and venues. Finally, Recordare has been developed and written with longevity in mind: it was conceived entirely with Free Software tools in order to guarantee its long-term sustainability and reproducibility.

Machine Learning, Artificial Intelligence, and Music Information Retrieval - Session II

From Programmer to Composer: A Survey of Creative Authorship in the Age of AI

Ali Balighi[1]

[1]Texas Tech University

This article explores the transformation of musical authorship in the age of artificial intelligence, reframing the composer as a mediator between code, sound, and agency. Drawing from perspectives in composition, programming, philosophy, music theory, and technological design, the paper examines how AI systems redistribute creative labor and challenge traditional models of authorship. Through analytical reflection and case studies, it argues for a posthuman, systemic understanding of composition one grounded in ethical design, cultural responsibility, and technological transparency. Rather than displacing the human composer, AI invites a redefinition of authorship as collaborative, distributed, and evolving.

ARTEUS: an Algorithmic Rating Tool for Educating Untrained Singers

Arthur dos Santos[1], ***Bruno S. Masiero***[1]

[1]Universidade Estadual de Campinas

This study presents the development of a prototype software system for evaluating karaoke performances using a hybrid scoring methodology that integrates objective and non-intrusive subjective metrics. The proposed framework employs scientifically grounded techniques to assess vocal dynamics, timing, pitch, and timbral similarity, complemented by data-driven emotion recognition to capture the perceptual aspects of the performance. A key feature of the system is a composite scoring mechanism with customizable weightings, which enables flexible adaptation to user preferences in pedagogical contexts or entertainment scenarios. By leveraging artificial intelligence models, the system introduces a novel paradigm in performance evaluation, offering a structured yet extensible approach to quantifying aspects of artistic expression that are traditionally considered subjective. Designed with modularity and future scalability in mind, the framework can be expanded to include user-specific evaluation profiles with potential applications in both professional and recreational settings.

Evaluation of Fréchet Audio Distance with Bass Sounds

Adelmo Pereira[1]***, Flávio Morais Assis Silva***[1]

[1]Universidade Federal da Bahia

Objective metrics are important to determine the effectiveness of automatic audio processing, such as in denoising and music source separation. The *Fréchet Audio Distance* (FAD) is an objective metric that can be used to compare two sets of audios based on their statistical properties. An advantage of FAD when compared to traditional metrics is that FAD does not depend on the existence of the original clean version of processed or noisy audios to be evaluated. However, the effectiveness of the use of FAD has been divergent in the literature, requiring thus further investigation. In this paper we study the impact on FAD scores when different reference sets and models are used, for the restricted case of bass sounds. We studied the sensitivity of FAD to audio effects and noises and used it to evaluate denoising processes. We compared the results with a qualified subjective evaluation, carried out by people with experience with professional recording. We show that reference sets must be designed very specifically, as apparently equivalent sets might provide different results. We additionally highlight the usefulness of understanding FAD scores relatively, instead of absolutely.

September 17th

Machine Listening and Musical Creation

Exploring Teia : Designing Musical Textures for Live Electronic Music

Micael Antunes da Silva[1]

[1]Aix-Marseille Univ., CNRS, LIS, PRISM, InCIAM

This article presents *TEIA (Stochastic Textures with Assisted Interaction)*, a Max tool developed for real-time texture generation in the composition *Gestos: uma homenagem a Jaques Morelenbaum*. The tool is inspired by György Ligeti's metaphor of spider webs, used to explore the notion of texture in composition. *TEIA* treats musical texture as a high-level phenomenon shaped by the interrelationships of sound components, focusing on their density, variety and interactions. Drawing on psychoacoustic and compositional analyses of Ligeti and Xenakis, the tool generates complex sonic textures through pitch shifter configurations that manipulate sound masses. The article begins by discussing the creative context and compositional influences behind *Gestos*, exploring the intersection of composition, perception and computer music. It then delves into the design and functionality of the tool, highlighting its core textural behaviours, audio descriptors, and PCA-based analysis. Finally, the article reflects on the potential of *TEIA* to enable real-time manipulation of sound texture, thus contributing to the ongoing dialogue between composition, technology and perception.

ECHO: Shards of Sound

Aretha Lima[1]***, Eduardo dos Santos Andrade***[1]***, Flávio Luiz Schiavoni***[2]

[1]Universidade Federal de Minas Gerais, [2]Universidade Federal de São João Del Rei

This work is far more than just a sound sculpture or a digital musical instrument. It is, above all, an exercise in sonic memory — a living archive of Belo Horizonte's urban soundscape. Through the act of listening and collecting, the city is mapped not by its streets or architecture, but by its acoustic textures, its rhythms, its voices, and the ephemeral sonic events that compose daily life. In an urban context where sound is often perceived as pollution — an unwanted residue of modern existence — this work proposes a different way of listening. It invites the audience to engage with the acoustic chaos of the city, not as mere noise, but as a carrier of meaning, memory, and identity. What is usually dismissed as sonic shards — engines, footsteps, metallic reverberations, overlapping conversations — becomes raw material for poetic reconstruction. Each sound fragment functions as a shard, a broken piece of the city's auditory landscape. As participants rearrange these fragments, they build an ever-changing mosaic of stories, invisible geographies, and collective memories. What was once perceived as disorder transforms into an intimate, tactile, and deeply human experience of sound, space, and presence.

cusp~— energy-based synthesis through cusp catastrophe in Max/MSP

Leon Steidle[1]

[1]Universidade de São Paulo

This article presents cusp~, an audio-rate external for Max/MSP that implements René Thom's cusp catastrophe in real time as a nonlinear operator of energy transformation. Grounded in Gilbert Simondon's theory of metastable ontogenesis and Ilya Prigogine's irreversible thermodynamics, the object solves, sample by sample, the cubic equation $x3 + \alpha x + \beta = 0$ via via an internal cubic solver, exposing the multivalent region (< 0) where hysteresis and bifurcation become compositional parameters. We describe the mathematical modeling of the quartic potential, the performative mapping of the parameters , , and width, and the branch memory logic that ensures sonic coherence across the hysteresis cycle. Three test presets demonstrate the correspondence between theoretical predictions, spectrograms, and –state cycles, validating the device as an operator of sonic individuation. As a contribution, we provide (i) cross-platform open-source code, (ii) exemplary patches for real-time control of bifurcations, and (iii) a conceptual framework articulating catastrophe theory, musical energy, and contemporary sound design—offering the SBCM community a rigorous and reproducible tool for composing with energy gradients.

conTorchionist: A flexible nomadic library for exploring machine listening/learning in multiple platforms, languages, and time-contexts

José Henrique Padovani[1], ***Vinicius de Oliveira***[2]

[1]Universidade Federal de Minas Gerais, [2]Universidade Estadual de Campinas

The concept of 'machine listening' has profoundly shaped the development of interactive music systems, evolving from symbolic MIDI processing to a wide range of audio analysis techniques. While the recent proliferation of neural networks has greatly expanded these capabilities, it has also introduced complex processes that often function as opaque 'black boxes', limiting creative exploration. To address this, we present conTorchionist: a flexible, nomadic library designed to foster a more transparent approach to machine listening and learning. Built upon libtorch/PyTorch, it features a single shared core with dedicated interfaces for diverse environments, including Pure Data, Max, SuperCollider, and Python. This architecture unifies real-time and non-real-time workflows, leveraging libtorch's strengths in GPU-accelerated audio analysis, signal processing, and neural network inference. Ultimately, conTorchionist provides an adaptable toolset that empowers researchers and artists to seamlessly bridge different platforms, languages, and time-contexts in their creative and investigative work.

Computational Musicology

Graph theory tools applied to the harmonic analysis of J. S. Bach: towards an integration of network models and conventional analytical approaches

Juan Felipe Vasquez Rincon[1], ***Hanner Adith Cajar Caro***[1]

[1]Universidad Nacional de Colombia

This paper applies network analysis methodologies—specifically graph theory and associated centrality measures—to the study of two compositions by Johann Sebastian Bach from the Baroque period (17th–18th centuries). Each composition is segmented into discrete harmonic events, which are then modeled as nodes within a graph, with edges representing their functional or temporal relationships. The structural roles of individual events are assessed through centrality metrics (such as degree, closeness, and betweenness), revealing the presence of hierarchical or functionally pivotal elements within the harmonic network. Results indicate that network-derived centralities can align with, and potentially enrich, traditional music-theoretical interpretations, offering an alternative yet complementary analytical framework.

From Symbolic Representation to 2D Spatial Manipulation: A Transcription of Fractal Models from OpenMusic to Max Authors

Said Bonduki[1]**, *Ivan Simurra***[1]**, *Danilo Rossetti***[2]

[1]Universidade Estadual Campinas, [2]Universidade Federal de Mato Grosso

This article presents a project focused on the transcription of patches for musical composition and anal- ysis originally developed in the OpenMusic environment into Max/MSP, with particular emphasis on the implemen- tation of a compositional model based on fractals pro- posed by Mikhail Malt. The model employs Iterated Func- tion Systems (IFS) to generate fractal structures that con- trol frequency and temporal parameters in music, ini- tially applied in the composition Six Fractal Contempla- tions. The transcription aims to explore the capabilities of Max/MSP to integrate symbolic notation (through the Bach library) and graphical visualization (via the CN-MAT library), thereby enhancing the accessibility and ex- panding the functionalities of historically significant tools in Computer-Assisted Composition (CAC). It is concluded that the model offers a bridge between mathematical ab- stractions and creative processes, reinforcing the rele- vance of CAC in both preserving and innovating compu- tational tools for music.

Computational Modeling in Python for the Analysis of Choros: Hybrid Techniques for Pattern Extraction in Brazilian Popular Music.

Rafael Yasuda[1]

[1]Universidade Estadual de Campinas

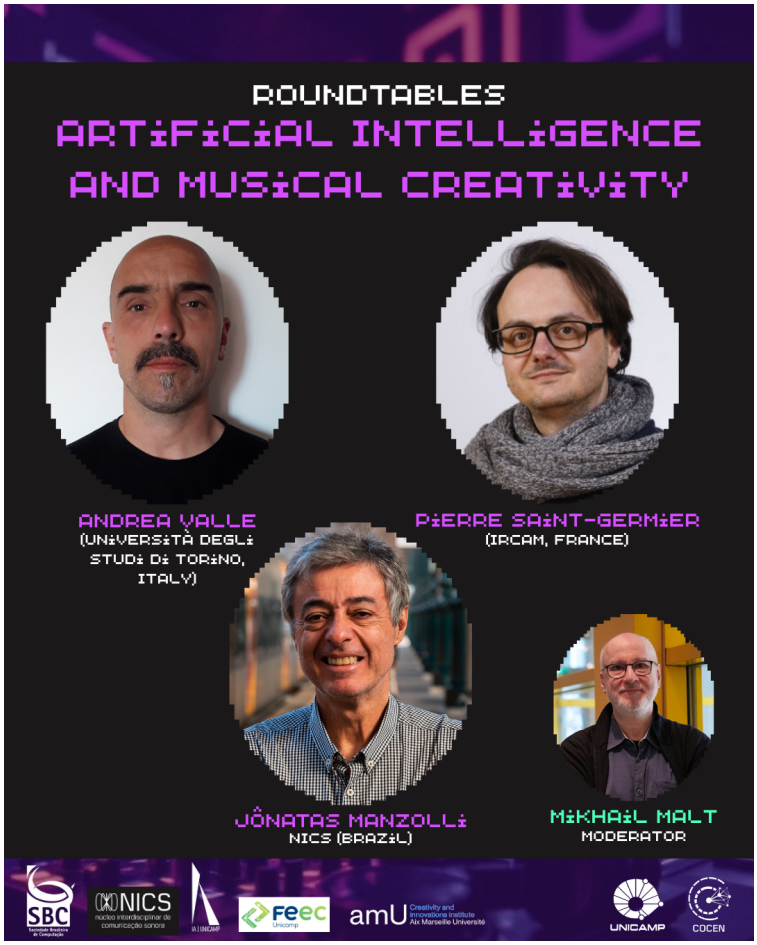
This article proposes a hybrid methodology for the computational analysis of the works of Aníbal Augusto Sardinha (Garoto), recognized as one of the most significant figures of instrumental Brazilian choro. The approach integrates symbolic and acoustic analysis procedures utilizing the Python libraries music21 and librosa, enabling automated extraction of structural and expressive parameters from digitized scores and historical recordings. The symbolic corpus is based on the Songbook Choros de Garoto (SESC/IMS), encompassing approximately fifty pieces converted into the MusicXML format. Whenever available, original recordings by Garoto are employed for acoustic analysis, allowing investigation of interpretative aspects such as dynamics, timbre,

and tempo. The methodology includes the extraction of tonalities, structural forms, harmonic progressions, melodic n-grams, Mel-frequency cepstral coefficients (MFCCs), chromagrams, and energy curves. Symbolic and acoustic data are integrated into a tabular structure using the pandas library, facilitating exploratory analysis through techniques such as Principal Component Analysis (PCA) and t-Distributed Stochastic Neighbor Embedding (t-SNE). This study represents the initial stage of ongoing doctoral research and aims to contribute to the systematization of computational tools for stylistic studies of Brazilian popular music.

Round Tables

Monday, 15 September 2025 at 13:00

Artificial Intelligence and Musical Creativity



Participants

– Andrea Valle (Università degli Studi di Torino, Italy)
– Jônatas Manzolli (Universidade de Coimbra, Portugal)
– Pierre Saint-Germier (IRCAM, France)
– Mikhail Malt (IRCAM, France – Moderator)

Description

This roundtable explores the role of artificial intelligence in musical creation by bringing together perspectives from composition, performance, philosophy, and semiotics. The discussion will focus on how AI reshapes creative processes, redefines listening practices, and challenges established theoretical frameworks. The session will be moderated by Mikhail Malt (IRCAM), a researcher specialising in computer-assisted composition, audio analysis, and interactive human–machine AI systems for musical creation.

Andrea Valle is Associate Professor at the Department of Humanities of the University of Turin, where he teaches Audio and Multimedia, Audiovision and Media and Media Semiotics. Graduated in Communication Sciences at the University of Turin, he obtained a PhD in Semiotics at the Scuola Superiore di Studi Umanistici of Bologna. He is a founding member and current Director of CIRMA, Interdepartmental Research Center on Multimedia and Audiovisual, of the University of Turin. In addition to international scientific publications, he is the author of *Audio and Multimedia* (with V. Lombardo, 5th ed. 2024), *Introduction to SuperCollider* (2015, English ed. 2017) and *Contemporary Music Notation* (2002, English ed. 2018). He is active in the music field as a composer and performer.

Jônatas Manzolli is Full Professor at the Institute of Arts, State University of Campinas (Unicamp), where he has led interdisciplinary research for over 25 years at the Interdisciplinary Nucleus for Sound Studies (NICS). His work bridges Music Composition, Computational Music, Human-Computer Interaction, and Computer-Aided Music Analysis, fostering dialogue between Science and the Arts. He has published more than 250 articles and supervised over 25 doctoral and master's dissertations, with many former students now active in leading institutions worldwide. International collaborations include visiting positions at ETH Zurich, Universitat Pompeu Fabra (Barcelona), CIRMMT (McGill University), and the Donders Institute (Netherlands). As a composer, his portfolio spans orchestral, chamber, and electroacoustic works, including three operas such as *Descobertas* (2016) and *Pássaros de Papel*, awarded by the Rockefeller Foundation (2018–2023). His innovative projects, such as the *Multimodal Brain Orchestra* (2009), exemplify his commitment to connecting artistic creation and scientific research.

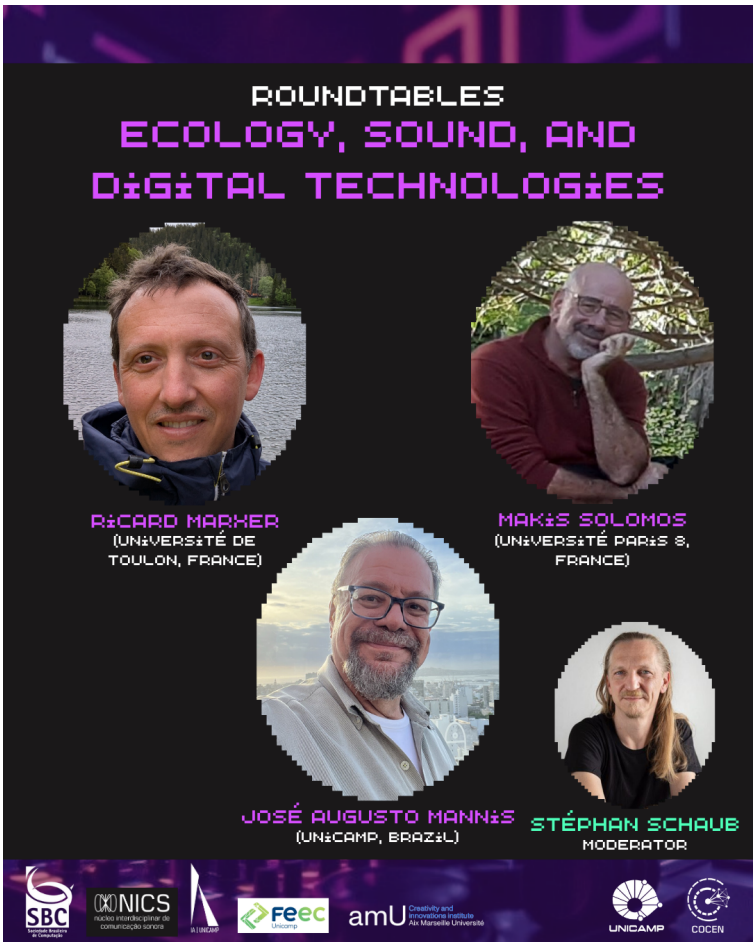
Pierre Saint-Germier is a Researcher at CNRS in philosophy, affiliated with the Sciences and Technologies of Music and Sound unit at IRCAM. Trained both in logic and epistemology, as well as in the philosophy of music, his work spans thought experiments, the logic of imagination, and musical improvisation. He coordinated *Language*, *Evolution*, *and Mind* (College Publications, 2018), and co-edited and translated with Clément Canonne two volumes of writings on music by Jerrold Levinson (*Essais de Philosophie de la Musique*, Vrin, 2015; *L'expérience musicale*, Vrin, 2020). His current research focuses on the philosophy of sound and music in the age of digital reproducibility, using them as prisms to examine the impact of the digital and AI revolutions on contemporary human condition. Alongside academic work, he cultivates a strong link with practice, surrounding himself with pianos and synthesizers. In 2017, he attended the Summer Program of the School for Improvisational Music in New York.

Mikhail Malt is a Researcher in the Musical Representations team at IRCAM, Computer Music

Designer Teacher in the Department of Pedagogy, Associate Research Director at Sorbonne University, and Composer. With a dual scientific and musical background in engineering, composition, and conducting, his research focuses on computer-assisted music writing and musical formalization. Since joining IRCAM in 1990 as a student and in 1992 as a research composer, he has worked at the intersection of research and teaching, particularly in the composition and computer music curriculum. His current projects develop along three main axes: (1) modelling and musical representation, including the study of the expressivity of formal models in computer-assisted composition, real-time generative music, and the modelling of open works; (2) the development of interfaces and tools for computer-assisted composition; and (3) musical analysis and computer-assisted approaches to performance and creation. Through these activities, he advances the integration of technology and musical creativity in both research and pedagogy.

Tuesday, 16 September 2025 at 13:00

Ecology, Sound, and Digital Technologies



Participants

– Ricard Marxer (Université de Toulon, France)
– Makis Solomos (Université Paris 8, France)
– José Augusto Mannis (Unicamp, Brazil)
– Stéphan Schaub (NICS, Brazil – Moderator)

Description

This roundtable brings together perspectives from musicology, composition, and bioacoustics to reflect on how digital technologies are transforming our relationship with sound environments. The discussion will address ecological listening, sonic representations of nature, and the artistic, scientific, and technological implications of working with sound in the digital age. The session will be moderated by Stéphan Schaub (NICS – University of Campinas), a researcher whose background

combines musicology, mathematics, and composition, and whose current project focuses on sound ecology in dialogue with contemporary creative practices.

Ricard Marxer is Full Professor at the Université de Toulon, founding director of the Erasmus Mundus Joint Master's in Marine and Maritime Intelligent Robotics (MIR), and head of the DYNI research team (Dynamics of Information). His work bridges machine learning, AI, sound, and robotics. In bioacoustics, he develops SSL techniques to process vast raw data with limited annotations, advancing detection and analysis across species such as whales, primates, and birds, with applications in ethology and biodiversity monitoring. In marine robotics, he designs simulation- and data-driven methods to enhance autonomous exploration and environmental sensing, addressing the challenges of oceanic data collection. He is also investigating interpretability in agentic AI, particularly within role-playing LLMs and long-form interactions. His interests include machine listening, speech and language, music technology, AI safety, and responsible AI.

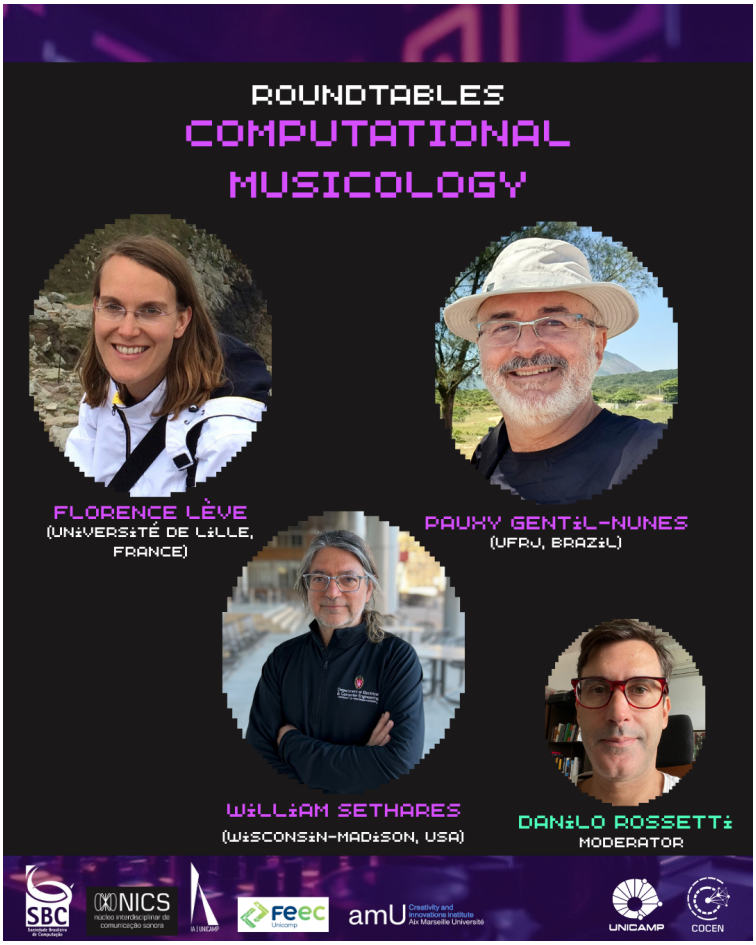
Makis Solomos is Professor of Musicology at the University Paris 8 and director of the MUSIDANSE research team. He is a leading international specialist on Xenakis, to whom he has devoted numerous publications and symposiums, and co-founder of the journal *Filigrane. Musique, esthétique, sciences, société*. His research explores sound, musical space, new techniques and technologies, mutations of listening, and sound ecology. He is the author of *From Music to Sound: The Emergence of Sound in 20th- and 21st-Century Music* (Routledge, 2019), and his forthcoming book *Exploring the Ecologies of Music and Sound. The Living, the Mental and the Social in Today's Music, Sound Art and Artivisms* (working title, Routledge) addresses contemporary ecological perspectives. His recent work also focuses on performing Xenakis' instrumental and electroacoustic music.

José Augusto Mannis is Full Professor at the Institute of Arts, University of Campinas (UNICAMP). He holds degrees in Electrical Engineering (FEI), Composition and Conducting (UNESP), and Electroacoustic Composition and Musical Research (CNSMDP, Paris). He earned a Master's in Music from Université Paris 8 (1988), a PhD in Music from UNICAMP (2008), and a postdoctoral fellowship at the Federal Fluminense University (UFF). His research spans contemporary composition, sonology, audio engineering, and acoustics, with interdisciplinary projects in radio, bioacoustics, room and musical acoustics, documentation, creative processes, and music education. He is founder and director of LASom – Laboratory of Acoustics and Sound Arts at UNICAMP, collaborator at the Signal, Multimedia and Telecommunications Laboratory (COPPE/UFRJ), and member of the research group Rhythm, Body and Sound at UFRJ.

Stéphan Schaub holds bachelor's degrees in Percussion, Musical Composition, and Mathematics (University of Arizona, USA) and in Musicology (EHESS and Sorbonne University, France). His early research focused on the implications of mathematical formalization in compositional processes and in the analysis of 20th-century music, with emphasis on rhythmic and sonic dimensions. By studying the theoretical and musical works of Iannis Xenakis and Milton Babbitt, he expanded his scope to include methodology and epistemology of musical analysis, digital technology in music studies, and frameworks for guiding open and improvised performance. Since 2016, he has been a permanent researcher at the Interdisciplinary Nucleus for Sound Communication (NICS), University of Campinas (UNICAMP), Brazil.

Tuesday, 17 September 2025 at 13:00

Computational Musicology



Participants

– Florence Levé (Université de de Picardie Jules Verne, France)
– Pauxy Gentil-Nunes (Universidade Federal do Rio de Janeiro – UFRJ, Brazil)
– William Sethares (University of Wisconsin–Madison, USA)
– Danilo Rossetti (UFMT, Brazil – Moderator)

Description

This roundtable aims to foster dialogue among researchers from diverse backgrounds on how computational methods can enrich, transform, or challenge traditional approaches to analysis,

theory, and artistic practice in music. It will bring together perspectives from music theory, computer science, and signal processing to reflect on the ongoing evolution of the field of computational musicology. The session will be moderated by Danilo Rossetti (Federal University of Mato Grosso – UFMT), whose work focuses on the analysis of contemporary music through audio tools and computational methodologies.

Florence Levé is Professor of Computer Science at the Université de Picardie Jules Verne, where she conducts her research within the MIS Laboratory (Modélisation, Information & Systèmes) in Amiens, serving as head of the Networks and Data research area. Since its creation, she has also been affiliated with the Algomus team of the CRIStAL Laboratory in Lille. Her research lies at the intersection of computer science and music, with a particular focus on computational musicology. She investigates the structuring of music at multiple scales and across different dimensions, including rhythm, texture, melody, and harmony, as well as the perceptual processes underlying these elements. She co-leads the MusiScale initiative (Multi-scale Modeling of Large Musical Data Collections) of the GDR MADICS, which brings together researchers interested in data-driven approaches to music. In addition, she is Co-Editor-in-Chief of the journal *Transactions of the International Society for Music Information Retrieval (TISMIR)*, contributing to the advancement of the international MIR community.

Pauxy Gentil-Nunes is a composer and flutist whose work centres on contemporary concert music. He is Professor of Harmony, Musical Analysis, and Composition at the Federal University of Rio de Janeiro, and his works have been performed and recorded internationally by renowned musicians and ensembles. His diverse output includes chamber, vocal, orchestral, and electronic music. As a performer, Gentil-Nunes has premiered hundreds of works by Brazilian and international composers, with a particular focus on extended techniques and interactions with electronic media. Since 2011, he has been a member of the Abstrai Ensemble, dedicated to performing and disseminating contemporary concert music. Holding a PhD in Musical Language and Structuring from UNIRIO, he leads the research group PArtiMus, focused on artistic research, creation, and musical experimentation. His studies explore musical texture, within which he developed Partitional Analysis—a theory further expanded by other scholars. He also investigates post-tonal harmony and rhythmic structures, contributing both theoretical and practical insights to contemporary music.

William Sethares is Professor of Electrical and Computer Engineering at the University of Wisconsin–Madison. His research spans system identification, signal processing, and acoustics, often combining engineering perspectives with musical motivations. In signal processing, his work addresses algorithm stability, convergence analysis, and equalization, while also developing applications that link acoustics, perception, and music. He is widely recognised for exploring the relationships between timbre (or spectrum) and tuning (or musical scale), demonstrating how certain sounds appear more consonant when paired with specific scales. These investigations culminated in his influential book *Tuning*, *Timbre*, *Spectrum*, *Scale* (Springer, 2nd ed.), which remains a key reference in the field. More recently, his research has focused on methods for detecting periodicities in data, aiming to automatically identify rhythmic structures in musical performance and in other temporal signals, such as heartbeats. His book *Rhythm and Transforms* (Springer) presents these findings, bridging theoretical, computational, and perceptual approaches to rhythm and time.

Danilo Rossetti is a composer and researcher whose work focuses on the use of technology and interdisciplinary approaches in creative processes and musical analysis. His compositions span diverse formations, including solo and ensemble works, acousmatic music, live electronics, and multimodal projects such as audiovisual installations, music and dance, networked, and telematic performance. He is Assistant Professor in the Department of Arts at the Federal University of Mato Grosso (UFMT) and a collaborating professor in the Graduate Program in Music at the State University of Campinas (Unicamp). He earned his PhD in Music Composition at Unicamp, with a doctoral residency at the Centre de Recherche en Informatique et Création Musicale (CICM), Paris 8 University, and later completed a postdoctoral fellowship at the Interdisciplinary Nucleus for Sound Communication (NICS/Unicamp) with support from the São Paulo Research Foundation (FAPESP). His works have been presented at leading international events, including SMC, ICMC, CMMR, NYCEMF, NIME, SBCM, and the Funarte Contemporary Music Biennial.

Practical Information

Venue

Main activities will take place in Centro de Convenções, Teatro de Arena, Auditório do Instituto de Artes, and NICS.

- *Centro de Convenções*: Avenida Érico Veríssimo, 500 - Barão Geraldo, Campinas - SP
- *Teatro de Arena*: Rua Elis Regina - Barão Geraldo, Campinas - SP
- *Auditório do Instituto de Artes*: Rua Elis Regina, 50 - Barão Geraldo, Campinas - SP
- *NICS*: Rua da Reitoria, 165 - Barão Geraldo, Campinas - SP

1. About Campinas: Host City

Campinas, located in the state of São Paulo, played a pivotal role in Brazil's coffee cycle from the mid-19th to early 20th centuries, emerging as a major coffee-producing centre that significantly boosted the national economy. This period also fostered a rich cultural environment, nurturing talents such as opera composer Carlos Gomes, whose work earned international acclaim.

In modern times, Campinas has transformed into a vital hub for technology and innovation. It is home to prestigious institutions like the University of Campinas (Unicamp) and numerous high-tech companies. One of its standout facilities is the Brazilian Synchrotron Light Laboratory (LNLS), which operates Sirius—one of the world's most advanced synchrotron light sources. This facility supports cutting-edge research across diverse scientific fields, solidifying Campinas' position as a leading center for innovation in Brazil.

2. About Barão Geraldo: Neighbourhood

Barão Geraldo, a district of Campinas, originated in the late 19th century. Named after Baron Geraldo de Resende, who played a key role in its development, the district initially thrived as an important coffee cultivation area, influencing both local and global markets. Over time, Barão Geraldo evolved into an academic and ecological hub, hosting institutions like branches of Unicamp and emphasizing innovation and sustainability.

This unique blend of academia and environmental preservation highlights Barão Geraldo's significance in promoting sustainable development and technological progress.

How to get to Campinas

There are two main airports you can fly to in order to reach Campinas: Cumbica—São Paulo International Airport (GRU) and Viracopos Airport (VCP).

- *GRU*: 2-hour car/taxi/Uber trip until Unicamp or find the LIRABUS company counter at Terminal 2 Check-in B and request a ticket to Campinas (around R$55.00, bus schedule can be checked on the LIRABUS company website)

- *VCP*: 30-minute car/taxi/Uber trip until Unicamp.

Accommodation

Recommended accommodation:

- *CPV — Casa do Professor Visitante*: 0.7 km / 2 min drive or 9 min walk from the venue.

- *Pousada Pé de Mamão*: 3.1km / 4 min drive or 20 min walk from the venue.

- *Hotel Matiz Barão Geraldo*: 3.1km / 8 min drive from the venue.

- *Golden Park Hotel — Downtown*: 19 km / 25 min drive from the venue.

Information regarding visa

Please note that unqualified requests will not be granted.
Before applying for a Visa letter, ensure you qualify under one of the following categories:

- Conference registrants (a registration is only completed after the payment is processed).

- Organizing committee members

- Invited guests and speakers

- Persons known to the committee members

It is the responsibility of the participant to review his/her visa status and determine whether they need a visa or visa renewal for entering the country where the conference is hosted. Furthermore, it is up to the participant to pay any related fees, find out how to schedule an interview appointment and other instructions for the application process.
For details that apply specifically to your country, please visit a website of the nearest Consulate or Embassy of the country hosting the event.

Contact us after completing your registration to request a fillable Visa Letter template.

Where to eat

In the Barão Geraldo district there are several options for food during the SBCM, we have separated some suggestions in the neighborhood.

Bakeries and Cafes:

- *Cafeteria Urbana*: Avenida Santa Isabel, 555 - loja 01
  Cafeteria with a daily rotating menu of savory and sweet dishes.
  2.4 km / 8 min drive from the venue.

- *The Bikery*: Avenida Albino J. B. de Oliveira, 1801
  Bakery with long-fermented breads, croissants and sweets.
  2.8 km / 7 min drive from the venue.

- *Padaria Alemã*: Avenida Dr. Romeu Tortima, 285
  Traditional bakery with savory snacks and sandwiches made on-site, as well as pies and breads.
  2.6 km / 5 min drive from the venue.

- *Cantina do Bello*: Rua Sérgio Buarque de Holanda, 911
  Several options for lunch and afternoon snacks on campus.
  0.7 km / 3 min drive or 10 min walk from the venue.

Restaurants:

- *Restaurante Del Sol*: Rua Roxo Moreira, 1648
  Self-service restaurant for lunch with a wide variety of options.
  1.4 km / 4 min drive or 20 min walk from the venue.

- *ReÚne - Comida e Cultura*: Rua Manoel Antunes Novo, 481
  Healthy and natural eating option with minimally processed foods. Dinner options also available.
  2.6 km / 7 min drive from the venue.

- *Bardana Restaurante*: Avenida Dr. Romeu Tortima, 1500
  Buffet with a variety of flavors, from salads to meats and fish. Dinner options also available.
  1.7 km / 5 min drive or 20 min walk from the venue.

Convenience store and market:

- *OXXO - Atilio Martini*: Rua Dr. Ruberlei Boareto da Silva, 442
  24-hour convenience store. Part of a chain of stores, there are a total of four in the district. This is the closest to the venue.
  0.8 km / 2 min drive or 12 min walk from the venue.

- *Dalben Supermercados*: Avenida Albino J. B. de Oliveira, 551
  Supermarket with a wide range of shopping options.
  2.9 km / 7 min drive from the venue.

- *Pão de Açúcar*: Avenida Albino J. B. de Oliveira, 1340
  Market for smaller purchases, with self-service laundry facilities.
  2.1 km / 7 min drive or min walk from the venue.

Bars:

- *Bar Santa Genebra*: Rua Angelo Vicentim, 736
  Bar with a variety of local food and drink options.
  2.6 km / 8 min drive from the venue.

- *Confra Emporio Bar*: Rua José Martins, 503
  Craft beer and sandwiches in an informal setting.
  2.5 km / 7 min drive from the venue.

- *Empório do Nono*: Avenida Albino J. B. de Oliveira, 1128
  Traditional bar in the district, serving lunch, snacks, dinner and draft beer.
  2.1 km / 7 min drive from the venue.