The Instrument in the Loop

AIMC 25 Concert 3

Guest Performance: Suspensions

GIUSY CARUSO

Suspensions is a contemporary music performance by Atau Tanaka. The piece combines acoustic piano with EMG (electromyography) wearable gesture and motion control device using surface electromyography (EMG) signals collected via a precision Myo-armband sensor, leveraging machine learning algorithms. These signals are transformed into electronic sounds, creating a unique dialogue between body and instrument. Giusy Caruso brings her expertise in embodied performance and human-computer interaction to this work, exploring new expressive possibilities beyond traditional piano playing.

COMACROB

ALEXANDROS DRYMONITIS

Companion Paper

COMACROB is the acronym of the postdoc research titled Composing for Acoustic Robots - Instant Synthesis for Computer-Controlled Acoustic Instruments Through Live Coding and AI. The COMACROB performance aims to demonstrate the advancements on instant composition in this field that have been realized through this postdoc research. The research was split in two parts, where the first part resulted in a series of short instant compositions for a Yamaha Disklavier robotic piano, and the second part resulted in a single instant composition for a MIDI-controlled church organ. The COMACROB performance mixes these two parts, by utilizing the resulting technology that was developed during this research and combining it with a human performer on a standard piano and electronics.

Things AIn't What They Used To Be

MARK WHITLAM; CELESTE CANTOR-STEPHENS

Companion Paper

This performance work—titled in reference to Duke Ellington's big band jazz classic, released over sixty years ago—offers a gentle provocation, contrasting traditional approaches to jazz improvisation with emerging paradigms in human–AI interaction. Combining real-time machine learning and deep learning tools, the piece stages a live collaboration between improvising human musicians and generative AI agents. Central to the work is a subversion of the established technique of the contrafact, whereby new melodies are composed over pre-existing chord progressions. Here, the process is inverted: AI agents are tasked with reharmonising composed melodic lines, thereby disrupting the expected harmonic framework. This indeterminacy both encourages and challenges the performers to find new musical responses.
Leveraging technologies such as Somax2, RAVE, Mosaïque, and Google MediaPipe within MaxMSP, the system enables algorithmic agents to act as both collaborative and disruptive partners in the performance loop. These agents generate unexpected musical gestures and offer novel, interactive modalities that stimulate and provoke the performers. The result is an evolving musical language that emerges from the entangled dynamics of this extended network of human and machine improvisers.

Pi + Gamyeon III

(((APRIL 33))) - LUCIA AHN, PIANO; MARIA AHN, CELLO; TAE HONG PARK, ELECTRIC BASS, COMPUTER, COMPOSER

Companion Paper

Gamyeon III focuses on the layers within soundscapes and explores the interaction of background, middleground, and foreground sonic layers, which inform the perception of spaces, transforming them into places while leaving sonic traces. The piece was completed during the global COVID-19 pandemic while composer Tae Hong Park and his family were living in the heart of the West Village in Manhattan. New York City, known as the “City that Never Sleeps,” underwent a profound transformation, as the omnipresent sonic cacophony was silenced, revealing masked sonic layers amidst empty streets, where even the drop of a needle could be vividly heard. This piece endeavors to capture the essence of this transformation - before, after, and during the pandemic - through the lens of musical art, soundscapes, and sound sensor networks, exploring the concept of 'Jamming with Planet Earth.'

Music for AI Audience

VEERA JUSSILA; DEREK YAU

Companion Paper

Music for AI Audience is a live, collaborative piece between custom deep learning software and a musician. In the 10-15 minute piece, multimodal LLM agents observe an improvised sound performance and let their minds wander through digital archives. This machine listening and machine seeing results in outputs that, on their part, act as prompts for the musician in the loop. The piece not only explores the creative possibilities of improvising in front of a non-human audience, but the potential and limits of machine sentience in experiencing art.

The Third Man

ADAM JAMES WILSON

Companion Paper

"The Third Man" is the latest in a series of pieces, spanning fifteen years of iteration, for fretless electric guitar and "automatic improvisation" software. Prior works in the series have been performed throughout the United States, many of them at the New York City Electroacoustic Improvisation Summit between 2016 and 2025. "The Third Man" presents as a microtonal jazz fusion quartet---live guitar with virtual bass, drums, and harmony instruments. The drum section is algorithmically pre-generated from a short kernel of composed material, while harmonies are generated in real time. Accompaniment develops, in part, from a factor oracle representation of the improvising guitarist's output; a simple probability model is used to traverse the automaton to produce idiomatic recombinations of material. The software instruments in "The Third Man" can be thought of as virtual hyperinstruments; they largely mimic the capabilities of human performers, but are extended to include some subtle impossibilities. The title of the piece refers to a mysterious presence, such as that referenced in T.S. Eliot’s _The Waste Land_, manifesting itself in soundscapes that appear---despite arising from concrete interactions between the improvising guitarist, composer/programmer, and software---to materialize autonomously.

Recursive speculation

VINCENZO MADAGHIELE; KELSEY COTTON

Companion Paper

Recursive Speculation is an improvised vocal performance that features a vocalist and the Multi-Agent Autonomous Looper (MAAL), a co-creative sampler/looper based on a multi-agent logic algorithm and machine listening. The MAAL is composed of several agents, each controlling a loop track, which can autonomously decide to sample and play back segments of a live vocal performance by listening to each other. The performance evolves as a dialogue between the musician and the system, in which the machine acts as speculative mirror able to autonomously select and repeat segments of the performer's voice, layering them to construct evolving musical structures. The system appropriates vocal segments, it disembodies them through repetition, reimagining their meaning and their musical function by recombination and association. The musician and the system are in a co-creative feedback where the musician generates the material the system selects, and at the same time she must respond to the system's autonomous choices throughout the performance.

Information Storage and Retrieval

MOLLY JONES

Companion Paper

Information Storage and Retrieval is an audiovisual composition inspired by three classes of machines: digital looms, player pianos, and early computers. These machines have intertwined histories, shared control mechanisms, and common abstract data structures. All three classes of machines are fully digital and fully physical, all mechanize work previously done by human hands, and all turn information stored on punched paper into material artifacts. Pianists, programmers, and weavers use these punched paper artifacts to store data as grids of holes, a data structure that mirrors gridlike weaving patterns, staff music notation, and matrices of numbers. This composition celebrates the commonalities of these machines. The piece features field recordings of looms; MIDI sequences generated by transformer models trained on my original composed material; projected digital video collages of weaving patterns; and a performer controlling laptop, projector, and prepared player piano.

Artists

GIUSY CARUSO
Giusy Caruso is postdoctoral artist-researcher and professional concert pianist oriented towards the nexus of art-science-technology. Chair of the CREATIE Research Group at Royal Conservatoire Antwerp, her research explores new forms of human-machine interaction – such as the role of gestural technology (EMG and Motion Tracking) for the creation of XR performances, the analysis of gestures and AI applications.

ALEXANDROS DRYMONITIS
Alexandros Drymonitis is a sound and new media artist. He has a PhD from the Royal Birmingham Conservatoire, Birmingham City University, on the creation of musical works with the Python programming language, while his previous studies were on the classical guitar. His artistic practice focuses on new techniques utilizing new media such as computer programming, live coding, AI, or even older practices, like modular synthesis.
He has collaborated with various artists from different art disciplines, plus several ensembles, either interdisciplinary or music ensembles.
He is currently a Postdoc Researcher at the Cyprus University of Technology, doing research on instant synthesis for computer-controlled acoustic instruments through live coding and AI.

MARK WHITLAM
Mark Whitlam is a composer, drummer/percussionist, and educator. He has recorded with and performed internationally with luminaries of the UK jazz scene, including ECM recording artists Andy Sheppard, Iain Ballamy, and Jason Rebello (Sting), as well as cross-genre projects with Portishead guitarist Adrian Utley and Goldfrapp's Will Gregory. Mark's compositions and performances have received wide airplay on BBC 2, 3, 6, and Jazz FM, and he has received commissions for an HBO television miniseries. He is currently undertaking a PhD in composition at the University of Bristol, exploring post-spectral language and the use of AI-based interactive agents within human, live, improvisation-led musical creation.

CELESTE CANTOR-STEPHENS
Celeste Cantor-Stephens is a highly accomplished improviser, composer, writer, and teacher, and is active on the music scenes both in the UK and New York. Her versatile trumpet embraces the creative and exploratory, spanning a range of practices and traditions: from free improvisation to klezmer, via jazz, dub-reggae, classical, and more. She has collaborated with a diverse range of artists, from percussionist Billy Martin and Soundpainting pioneer Walter Thompson to the late dub maestro Lee 'Scratch' Perry.
Both Mark and Celeste teach undergraduate and postgraduate music students in the UK at Bath Spa University and BIMM University, Bristol.

(((APRIL 33))) -MARIA AHN; LUCIA AHN; TAE HONG PARK
Taking root in 2018, the "April33" ensemble began to take shape when Tae Hong Park met Maria Ahn of the Ahn Trio in New York City's West Village, introduced by their mutual friend, DJ Spooky. A conversation about creating and performing music - bridging gaps between musical styles, aesthetics and influences - led to various collaborations, eventually culminating in the formation of "April33" Ensemble. Park, originally from Vienna, Austria, worked by day as a research engineer at LG Electronics' Central Research Lab in Seoul while immersing himself by night in the city's underground music scene with a trio that featured electric bass/voice, keyboards, drums, and computer throughout 1990s. In the early 2000s, he moved to the U.S. to pursue a Ph.D. at Princeton University, focusing on neural networks and music composition. Meanwhile, cellist Maria Ahn and pianist Lucia Ahn of the Ahn Trio were refining their artistry at Juilliard and captivating global audiences with their distinctive interpretations of classical music, performing at renowned performing arts centers all around the world. Maria, Lucia, and Tae Hong are now unveiling - (((April33))) - an ensemble that blends diverse aesthetics, instrumental virtuosity, and the power of computing. The ensemble's name is inspired by composer John Cage's 4'33" and his exploration of silence. In this spirit, the ensemble delves into serenity, calmness, and timelessness, while striking dynamic contrasts - juxtaposing these qualities with "recycled noise pollution," machines, humanity, place, and urbanity. Their Music of Sound aims to raise awareness of the omnipresence of environmental noise pollution in urban life, exploring the idea of "Jamming with Planet Earth" through the use of Citygram, a sound-mapping technology. (((April33))) Ensemble has performed at prestigious AI and Computer Music Conferences and festivals including ICMC Seoul 2024, FARM Milano 2024, IRCAM in NYC in 2018 and 2022, SEAMUS 2025 and WAC 2024 at Purdue University and at Estate Fiorentina Festival in Firenze, Italy this year. Their inaugural EP album is coming out later this year. (((april33sound.com | info@april33sound.com)))

VEERA JUSSILA
Veera Jussila is a computational artist and machine learning engineer who builds experimental AI systems to introduce alternative forms of communication. She holds a Master's degree in Computational Arts from Goldsmiths, University of London. Veera has researched ML tools in museum context in UAL Creative Computing Institute's team for Transforming Collections. Her work has been shown in CVPR Computer Vision Gallery. She is part of artist collective In-grid.

DEREK YAU

Derek Yau is a multi-instrumentalist with a penchant for tonal and free improvisation. He is also an application architect and holds a Masters degree in Cybernetics & Computer Science from the University of Reading, where his interests in HCI lead to the development of a musical controller, MusiCam.

ADAM JAMES WILSON

Adam James Wilson is a composer, guitarist, and software developer who programs computers to improvise with human musicians. His music incorporates algorithmic music composition and real-time generative techniques. Wilson performs with his software experiments on the fretless electric guitar, an instrument that caters to his penchant for microtonality. He has performed/presented his work in Tokyo, New York, Paris, Montreal, San Diego, Washington D.C., Boston, Baltimore, Atlanta, Belfast, Baton Rouge, Palo Alto, and elsewhere. Wilson co-founded and serves as director of the New York City Electroacoustic Improvisation Summit, an annual concert series featuring music by artists focused on the integration of music improvisation and real-time interactive computer systems. He is currently Associate Professor and Director of Emerging Media Technology, specializing in Computer Music, at New York City College of Technology (CUNY City Tech).

VINCENZO MADAGHIELE

Vincenzo Madaghiele [he/him] is a musician and researcher working on improvisation with algorithmic techniques. He combines sound-generating processes from various sources into feedback systems focusing on dynamic and textural relations. He is currently a doctoral researcher in musicology at the University of Oslo, where he investigates the design and application of autonomous systems in music improvisation.
https://www.vmad.me/

KELSEY COTTON

Kelsey Cotton [she/her] is a vocalist-artist-mover working with experimental music, Musical Artificial Intelligence, electronic textiles, soft-robotics, and Human-Computer Interaction. As a researcher, Kelsey is fascinated with pushing the limits of musical bodies, with her recent work delving deeper into designing artifacts which harness, augment and fuse different physiologies. She is passionate about somatic interaction, the potential for intersomatic experiences between fleshy and synthetic bodies, and first-person feminist perspectives of musical AI.
https://kelseycotton.com/

MOLLY JONES

Molly Jones is an improviser, composer, and data engineer based in Chicago and Ann Arbor. She creates work influenced by her experiences with free jazz, new music, Balkan brass, and found samples/sound collage. Her work originates in a place of playfulness, listening, and attention. She is currently completing a PhD in Performing Arts Technology at the University of Michigan with a focus on machine learning for creative audio applications.