3rd Conference on AI Music Creativity

Music Session
Composition & Sound Design/Synthesis #2

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Andrew Fyfe
Bob L. T. Sturm

Nostophiliac
Aus' Dreams
Resembling Shakuhachi
The shadow still lay where he had been standing

Nostophiliac

We interact daily with algorithms that emulate human perception and collective memory. By trying to communicate with us, the algorithms sound, look and behave more and more like us by reflecting our perception and memory back to us. What if those AI tools become instruments of manipulation by tackling the spectator's sense of familiarity using shared cultural signs, tropes, or archetypes? We investigate and explore the relationship between collective and individual memory reflected and manipulated through AI: the concept of the "found object" and its algorithmic transformation of meaning. The network, fed with familiar audio-visual "found objects", generates a progressive alteration, a dream-like transformation of meaning. On the musical side, a nonlinear feedback network that listens to familiar sound objects generates a continuous sound transformation. On the visual side, a generative adversarial network represents a collective artificial memory and perception. Each time, the sound and image transformations create a personal narrative, a phrase, a gesture for the spectator. The project is funded by Musikfonds, Berlin.

Phivos-Angelos Kollias is a composer-researcher with a PhD in Music inspired by Complexity Theories (University of Paris VIII). He has studied composition in Cambridge, London & Paris with the economic support of four foundations (Onassis Foundation, Megaron Athens Concert Hall, etc.). Kollias currently lives in Berlin, composing for Interactive Music performances, Virtual Reality installations and Video Games and working with AI Generative Visuals. He has given lectures at international conferences such as EMS (Paris & Leicester), SMC (Berlin), Xenakis International Colloquium (London), and Europe-China Cultural Forum (Brussels & Beijing). His music has received seven awards and nine nominations in international competitions. The group projects he has participated in with his music have won ten awards and distinctions, such as FIVARS (Toronto), Forbes top XR installations, IDFA (Amsterdam), and VR NOW (Berlin), and they have been premiered in festivals like BFI (London), Nationalgalerie (Berlin), National Palace Museum (Chiayi, Taiwan) CPH:DOX (Copenhagen). His music scores are published by BabelScores (Paris). His recent projects have been supported by Musikfonds (Berlin), Deutscher Musikrat (Bonn), Neukölln Department of Culture (Berlin), Dell Computers (US), Ensemble Ipse (New York) etc.

Aus' Dreams

Aus is the name of my computer. This work explores its anabiosis, i.e., its return to life after a period in a suspended state. The aim was to achieve an equitable collaboration, without one of us having more control over the performance than the other. After composing various dreams collaboratively, Aus navigates them according to characteristics of similarity. Altering my actions, it constantly seeks to embellish them and enhance my creativity, thus co-creating a complex musical system. This work invites the abandonment of self, attempting to engage in a state of latency to resonate with a whole.

Jean-Philippe Jullin (b.1995) is currently studying digital music at the University of Montreal. Holding a DEC in audiovisual technique, it is through his previous work in the audiovisual field that his language was shaped, mixing elements of art and technology. Passionate about sound experimentation, composer of experimental music, he seeks a different way of thinking about music. His performances and installations aim to establish a dialogue between humans and their environment by bringing the listener into the work. The sound meets the image and the material, approaching a multiplicity of techniques and meanings. His main field of activity today is around sound creation in collaboration with machines, with the objective of conceiving experiences of active contemplation, where various elements are assembled to question our perception of space and time.

Resembling Shakuhachi

Resembling Shakuhachi is a collection of three compositions which used only the generated material from a 'Real-time Audio Variational Auto-encoder' (RAVE) trained on a Shakuhachi dataset, with additional audio effects to manipulate and augment the material for creative expression.

1. *Shakuhachi Soundscape* demonstrates how the Shakuhachi model can produce illusions of the natural environment through extended performance. The various sounds contained within this composition are subject to the listener's interpretation but the intention was to create a soundscape that alludes to an outdoor and rural environment. Thus, illustrating the sonic versatility of the model.

2. *Shakuhachi Ambient* explores another form of soundscape featuring long reverberations and sonic resonances. The system was driven by synthetic input material which stressed the cohesive limitations of the Shakuhachi model. Beyond the cohesive limitations exists a trans-idiomatic terrain; sonic phenomena that transcends the familiar and recognisable sound of the Shakuhachi instrument.

3. *Shakuhachi Extended* consists of numerous layers of model-derived material, intricately arranged to create various syncopated rhythms and timbres. This is the only composition out of the collection that incorporates multiple tracks, audio splicing, compositional arrangement as well as the use of additional audio effects to manipulate and augment the featured material for further sonic exploration.

Andrew Fyfe is Tech Lead on the Neutone project at Qosmo, Inc. He is an AI and DSP engineer, who has worked at Krotos Audio Ltd and Audio Imperia LLC. Andrew is also a proprietor of Otago Engineering Ltd, developing audio software and hardware for music/sound production. Andrew is currently pursuing his PhD at the University of Glasgow, researching Neural Audio Synthesis, Neural Audio effects and developing tools for artists that utilise AI audio technologies.

The shadow still lay where he had been standing

This piece is in a sense an ode to Robert Ashley's opera for television, Perfect Lives (1984), but with durations far reduced to be more compatible with the attention span of the general YouTube audience. It explores a kind of stream of consciousness creation arising from interacting with generative machine learning models of music (folk-rnn and Music Transformer), text (GPT) and images (VQGAN-CLIP). To create the first episode, I built up a short script with GPT starting with the prompt: "deep and moving (a poem)". GPT responded, "The shadow still lay where he had been standing", and some other stuff. I used VQGAN-CLIP to generate images with prompts drawn from the text. Melodic material for this episode comes from material generated by folk-rnn and Music Transformer. The construction of the other episodes proceeded in much the same way.

Bob L. T. Sturm is the PI of the ERC Consolidator Grant "MUSAiC: Music at the Frontiers of Artificial Creativity and Criticism" (ERC-2019-COG No. 864189), which is exploring the implications of involving AI technology in music practices, with a particular focus on traditional music. He plays accordion, studies Irish traditional music, and composes. He is currently an Associate Professor of Computer Science at KTH, Royal Institute of Technology, where he teaches courses on music informatics and machine learning. Before that he was a Lecturer in Digital Media at the Centre for Digital Music, School of Electronic Engineering and Computer Science, Queen Mary University of London. He received a PhD in Electrical and Computer Engineering in 2009 from the University of California, Santa Barbara.