

Somax 2, a Reactive Multi-Agent Environment for Co-Improvisation

DEMO and PERFORMANCE PROPOSAL FOR SMC 2022

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1. DEMO PROPOSAL

Somax 2 [1] is a multi-agent interactive system performing live machine co-improvisation with musicians, based on machine-listening, machine-learning, and generative units. The actual version [6, 7, 8] is a recent development and algorithms improvement from the former Somax version and previous work in RepMus team [3,4, 5, 9, 11, 12].

Agents provide stylistically coherent improvisations based on learned musical knowledge while continuously listening to and adapting to input from musicians or other agents in real time. The system is trained on any musical materials chosen by the user, effectively constructing a generative model (called a corpus), from which it draws its musical knowledge and improvisation skills. Corpora, inputs and outputs can be MIDI as well as audio, and inputs can be live or streamed from Midi or audio files. Somax 2 is one of the improvisation systems descending from the well-known Omax software, presented here in a totally new implementation. As such it shares with its siblings, the general loop [listen/learn/model/generate], using some form of statistical modeling that ends up in creating a highly organized memory structure from which it can navigate into new musical organizations, while keeping style coherence, rather than generating unheard sounds as other ML systems do. However Somax 2 adds a totally new versatility by being incredibly reactive to the musician decisions, and by putting its creative agents to communicate and work together in the same way, thanks to cognitively inspired interaction strategies and finely optimized concurrent architecture that make all its units smoothly cooperate together.

Somax 2 allows detailed parametric controls of its players and can even be played alone as an instrument in its own right, or even used in composition workflow. It is possible to listen to multiple sources and to create entire ensembles of agents where the user can control in detail

how these agents interconnect and “influence” on each other.

Somax 2 is conceived to be a co-creative partner in the improvisational process, where the system after some minimal tuning is able to behave in a self-sufficient manner and participate to a diversity of improvisation set-ups and even installations.

This presentation will introduce the software environment, demonstrate its learning and interaction modes, explain the basic and advanced controls in the user interface, and allowing people to see and play with it.

2. PERFORMANCE PROPOSAL

To complete this demo session, we would like to kindly propose 4 short performance slots (4 min each), a musical performance (in concert), to present Somax 2 in real Artistic Situation.

The first two slots will be played by the flutist Simone Conforti with an EWI (electronic wind instrument) and the two other slots by the renowned international trombone player, Benny Sluchin. The main idea is to play twice the same situation in order to allow the audience to enjoy the changes and the similitudes that can occur in each improvisation context with Somax 2.

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