

# The Illusion of Control: Perceived versus Actual Control, Authorship, and Agency in Generative Music Composition Systems

*Aarush Vir Banerjee Kharbanda<sup>1</sup>, Advait Sarkar<sup>2</sup>.*

*<sup>1</sup> Dubai College, UAE, <sup>2</sup> University of Cambridge, UK.*

## **Abstract**

What drives user satisfaction in generative music composition systems, and more broadly generative creative systems: actual control, authorship, and agency or the perception of control, authorship, and agency over the generated output? While previous literature has examined the effects of control, authorship, and agency on user's engagement and satisfaction, there is limited understanding of how perceived control, authorship, and agency influences user experience in generative music composition systems. For this study, we developed two interactive melody generation systems in Python using Markov chains that act as compositional tools. Both systems allowed a user to play a melody on a MIDI keyboard, which were then fed to a first-order Markov chain that produced a similar melody with slight variation. Both systems also featured a control panel with steering tools, including sliders, dropdowns, and toggles allowing the user to control features of the generated melody, including the key, ending cadence, genre, and randomness. In the first 'Control' System, all of these steering tools worked, however in the second 'Placebo' System, only some steering tools worked whilst others had no effect on the melody generated, acting as placebos. To study the impact of perceived authorship, control, and agency, N=20 participants were given two 4-bar melodic phrases - one for each system - and asked to complete them by composing a concluding 4-bar phrase with the aid of the respective system. Participants were then interviewed on their experiences composing with each system. Interview transcripts were analysed and using qualitative thematic analysis our preliminary findings suggest that: a) participants found both systems as a good starting point for melodic ideation through a guided generation process; b) participants felt a greater sense of control with System B (Placebo) due to additional music steering tools; c) participants found composing with each system a collaborative process, iterating through prompting the system and generating new ideas. The findings of our study suggest that the illusions of control, authorship, and agency can meaningfully shape user experience, with implications for the future design of generative creative systems.

Keywords: Markov chains, algorithmic composition, generative music systems, music steering tools, Placebo effect, authorship, agency, control, human-computer interaction (HCI).