Interacting with Neural Audio Synthesis Models Through Interactive Machine Learning

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Recent advances in neural audio synthesis have made it possible to generate audio signals in real time, enabling the use of applications in musical performance. However, exploring and playing with their high-dimensional spaces remains challenging, as the axes do not necessarily correlate to clear musical labels and may vary from model to model. In this paper, we present a proof-of-concept mechanism for steering latent audio models through interactive machine learning. Our approach involves mapping the human-performance space to the high-dimensional, computer-generated latent space of a neural audio model by utilizing a regressive model learned from a set of demonstrative actions. By implementing this method in ideation, exploration, and sound and music performance we have observed its efficiency, flexibility, and immediacy of control over generative audio processes. Short video accompanying this abstract: https://bit.ly/xaixarts2023

CCS Concepts: • **Human-centered computing** → **Interactive systems and tools**;; • **Applied computing** → *Sound and music computing*.

Additional Key Words and Phrases: Machine learning, Steerability, Explainability, Neural audio synthesis, Sound, Music, Interaction

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