Visual Sound Instruments

Agoston Nagy, DLA Researcher
Moholy-Nagy University of Art and Design,
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Abstract

The thesis investigates the diversity of interaction modalities within software based sound instruments. Starting from the core concept of language as a tool for manipulating abstract symbols, the text is focusing on different sound and music representations, followed by a detailed description of the nature of visual sound instruments in terms of epistemology, cognitive aspects and interactivity.

The first part is about language and the respresentation of different ideas. The nature of algorithms as formalized problem solving methods along different concepts of programming languages are introduced in order to understand the different levels of abstractions.

The second part deals with visual sound instruments, starting from sonic visualizations, the origins and a brief overview of prescriptive and descriptive notation techniques. Software based instrument interfaces are compared with acoustic instruments. It turns out that the former lacks the presence of resonating instrument bodies, which leads to interesting questions related to mental space, ergonomy and instrument design.

The third part is about intuition, failure, chance, and different processes that can be found in the nature of playful interactive systems in general. Describing these methods might help designers to find novel ways for creating poetic tools with focus on temporality, playfullness through an immersive experience.

The Appendix introduces the concept behind *U-Lang*, a visual sound instrument, which is the final thesis artwork of the author.