Proposed Project

Sketch-to-Sound Mapping Using Semi-Supervised Learning

Project Objective

Develop a sketch-to-sound model that allows musicians to create their own associations between sound and shape.

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Related Works

Most sketch-to-sound mappings use supervised learning models trained on labelled datasets.

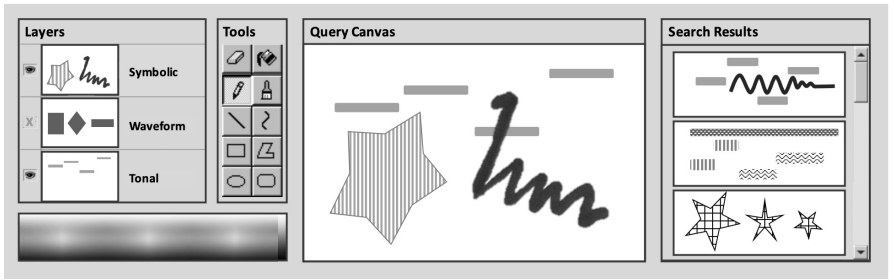
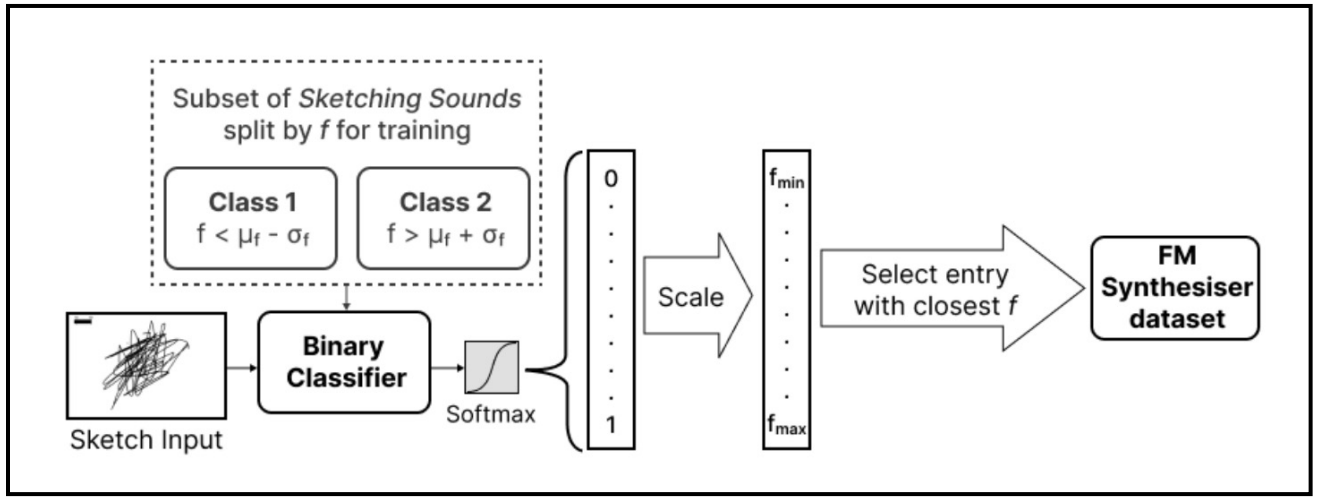


Figure 9: UI mockup of the proposed query-by-visual-sketch search engine for sound.

Knees and Andersen (2016) propose associating sounds and their graphical representations.

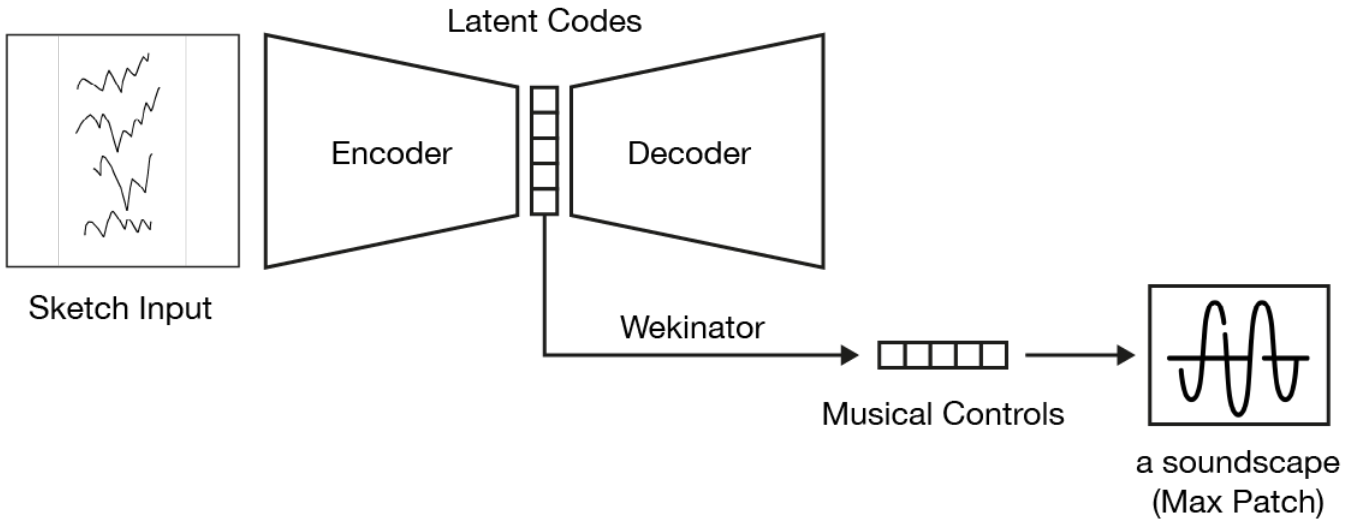


Löbbers et al.'s (2023) work uses

(1) classification models that predict characters (e.g. calm or noisy) of a sketch (Löbbers, et al., 2021),

(2) a mapping model that selects suitable sounds from a synthesis dataset annotated with a few semantic factors (e.g. sharpness and clarity) (Hayes et al., 2020).

System Components



Sketch to latent codes

VAE model (unsupervised paradigm)

latent codes to musical controls

Wekinator (supervised paradigm)

Interaction Process: tweak, train, and perform.

1. Prompt the musician with a few example sketches, and let them tweak the musical controls according to example sketches.
2. Train the Wekinator model.
3. Start exploring the soundscape with new sketches.