

The Lakh MIDI Dataset: How it was made, and how to use it

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BISH Bash Meetup, August 30, 2016

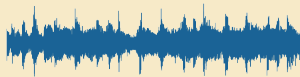
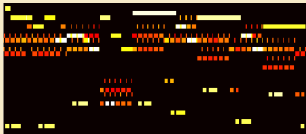


IGERT Integrative Graduate
Education and Research Traineeship

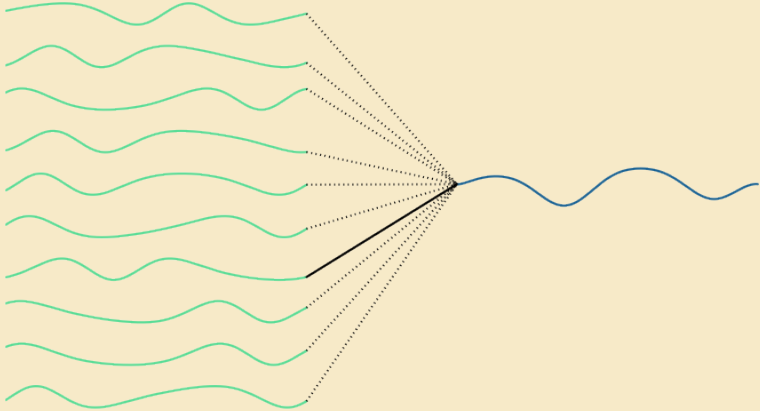


The Goal

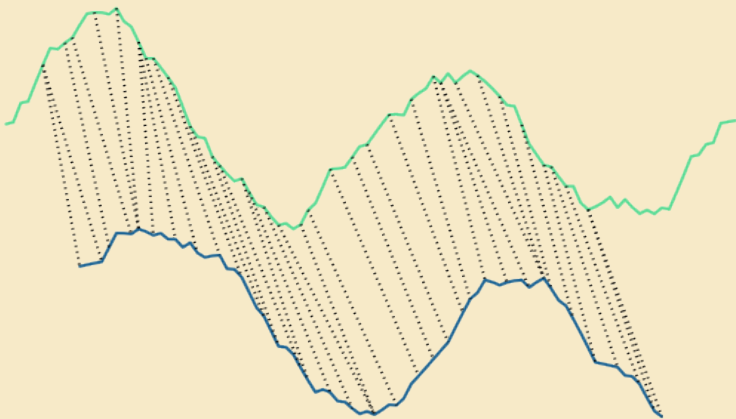
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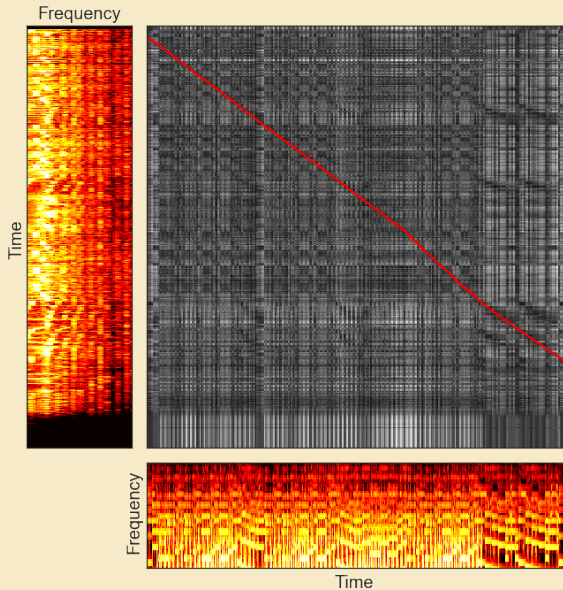
Sequence Matching



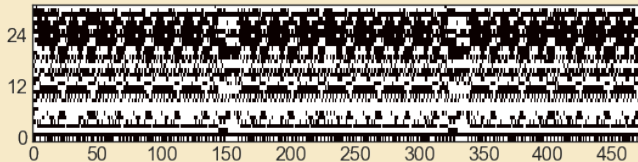
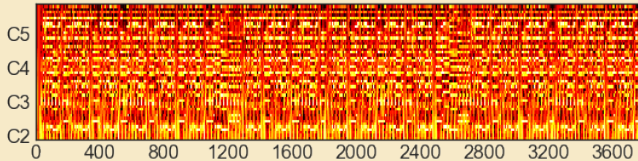
Dynamic Time Warping



Comparing MIDIIs with DTW



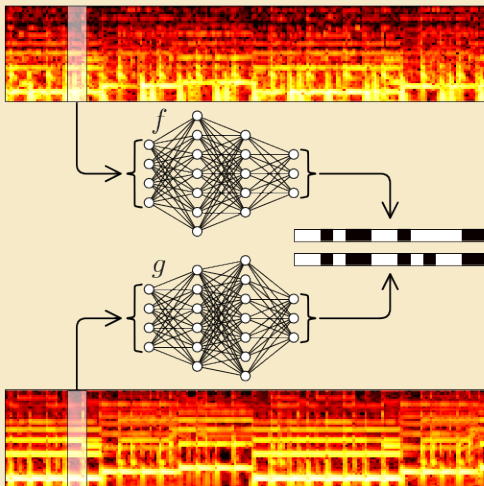
Downsampled Hash Sequences



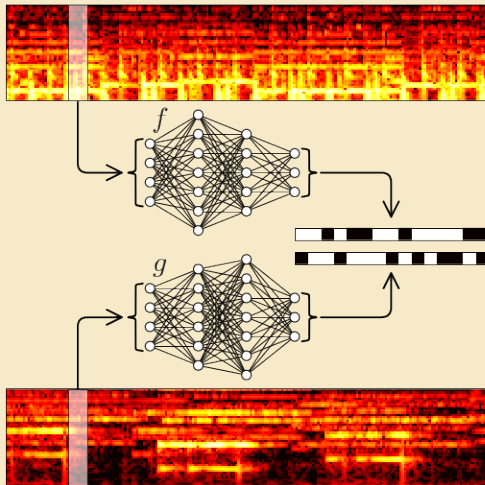
A diagram illustrating the POPCNT (Population Count) operation. It shows three horizontal bars representing binary sequences. The top bar has 9 black segments. The middle bar has 9 white segments. The bottom bar is the result of the XOR operation between the top and middle bars, showing 9 black segments. The equation below is:

$$\text{POPCNT}(\text{XOR}(\text{Sequence 1}, \text{Sequence 2})) = 9$$

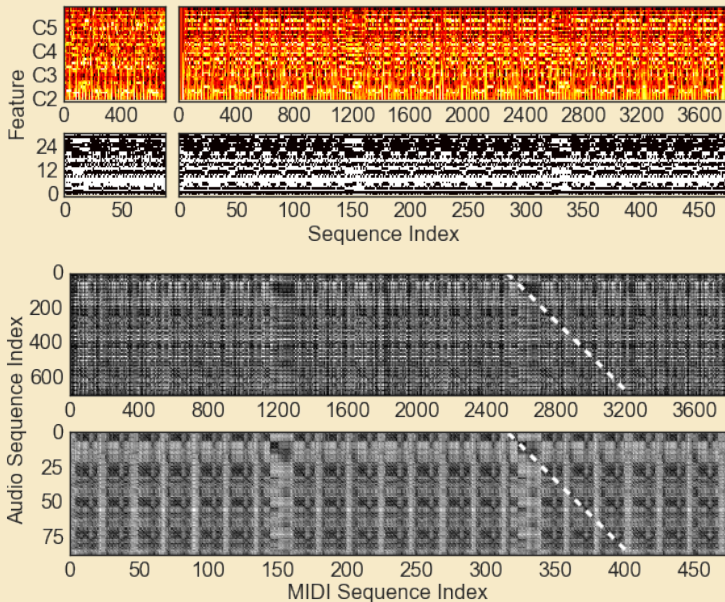
Similarity-Preserving Hashing



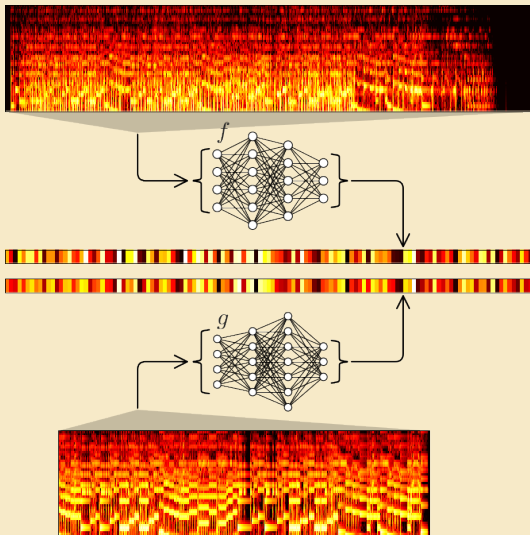
Similarity-Preserving Hashing



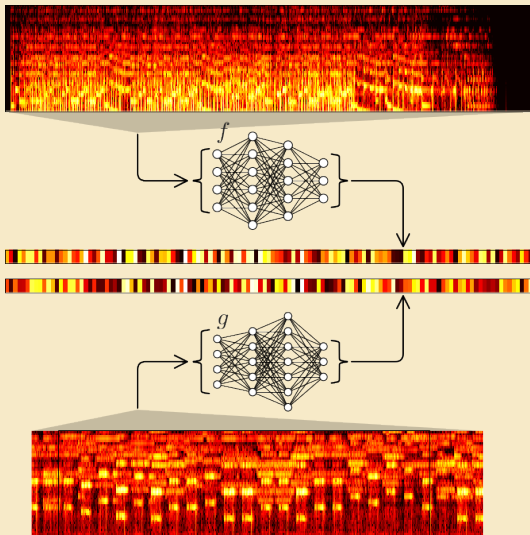
Example Output



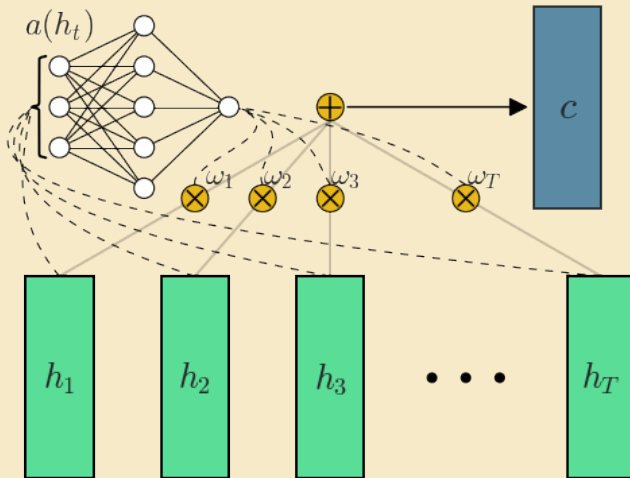
Pairwise Sequence Embedding



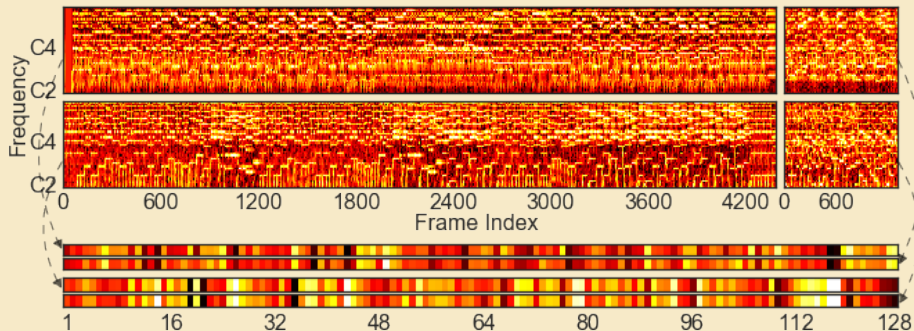
Pairwise Sequence Embedding



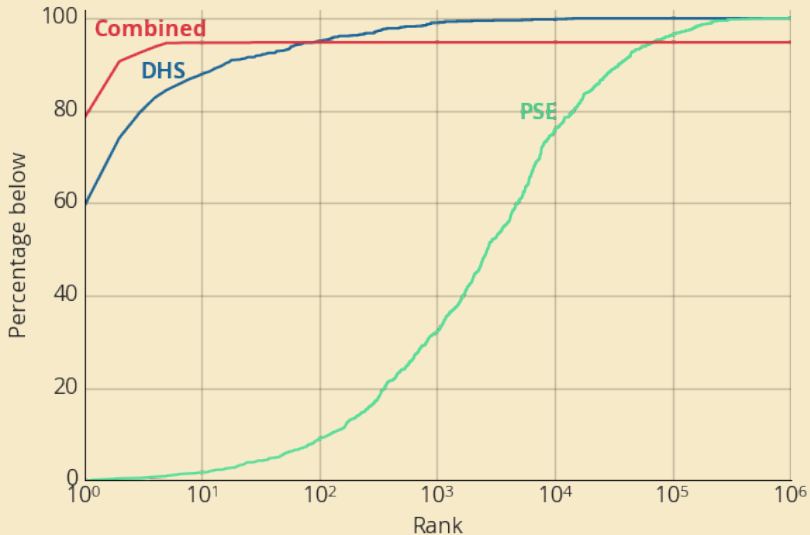
Feed-Forward Attention



Example Embeddings



Combined Match Ranks



Tutorial

<http://bit.ly/lmd-tutorial>

Pointers

<http://bit.ly/lmd-tutorial>

<http://colinraffel.com/projects/lmd>

<http://github.com/craffel/midi-dataset>

<http://colinraffel.com/publications/thesis.pdf>

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