Automatic Album Sequencing

Vincent Herrmann[1, 2, 3] *

Dylan R. Ashley[1, 2, 3, 4] *

Jürgen Schmidhuber[1, 2, 3, 4]

[1] Dalle Molle Institute for Artificial Intelligence Research, Lugano, Switzerland
[2] Università della Svizzera Italiana, Lugano, Switzerland
[3] Scuola universitaria professionale della Svizzera Italiana, Lugano, Switzerland
[4] King Abdullah University of Science and Technology, Thuwal, Saudi Arabia
* Equal Contribution

Abstract

Album sequencing is a critical part of the album production process. Recently, a data-driven approach was proposed for sequencing general collections of independent media by extracting the narrative essence of the items in the collection [1]. While their approach implies an album sequencing technique, it is not widely accessible to a less technical audience, requiring advanced knowledge of machine learning techniques to use. To address this, **we introduce a new user-friendly web-based tool that allows a less technical audience to upload music tracks, execute this technique in one click, and subsequently presents the result in a clean visualization to the user**. To both increase the number of templates available to the user and address shortcomings of the previous work, **we also introduce a new direct transformer-based album sequencing method**. We find that our more direct method outperforms a random baseline but does not reach the same performance as the narrative essence approach.
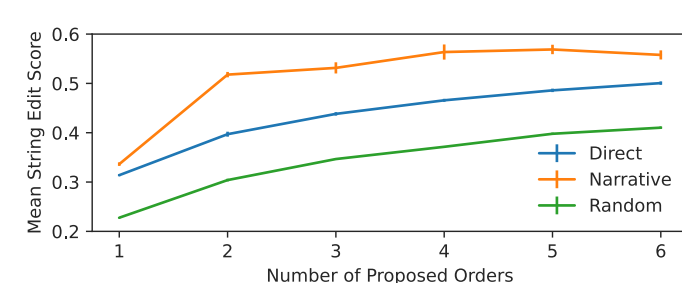
Web UI

1. **Upload your songs**
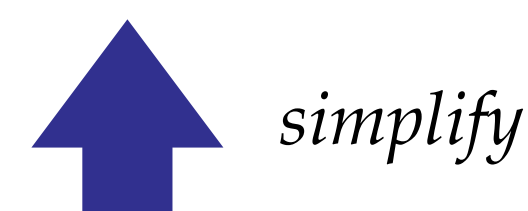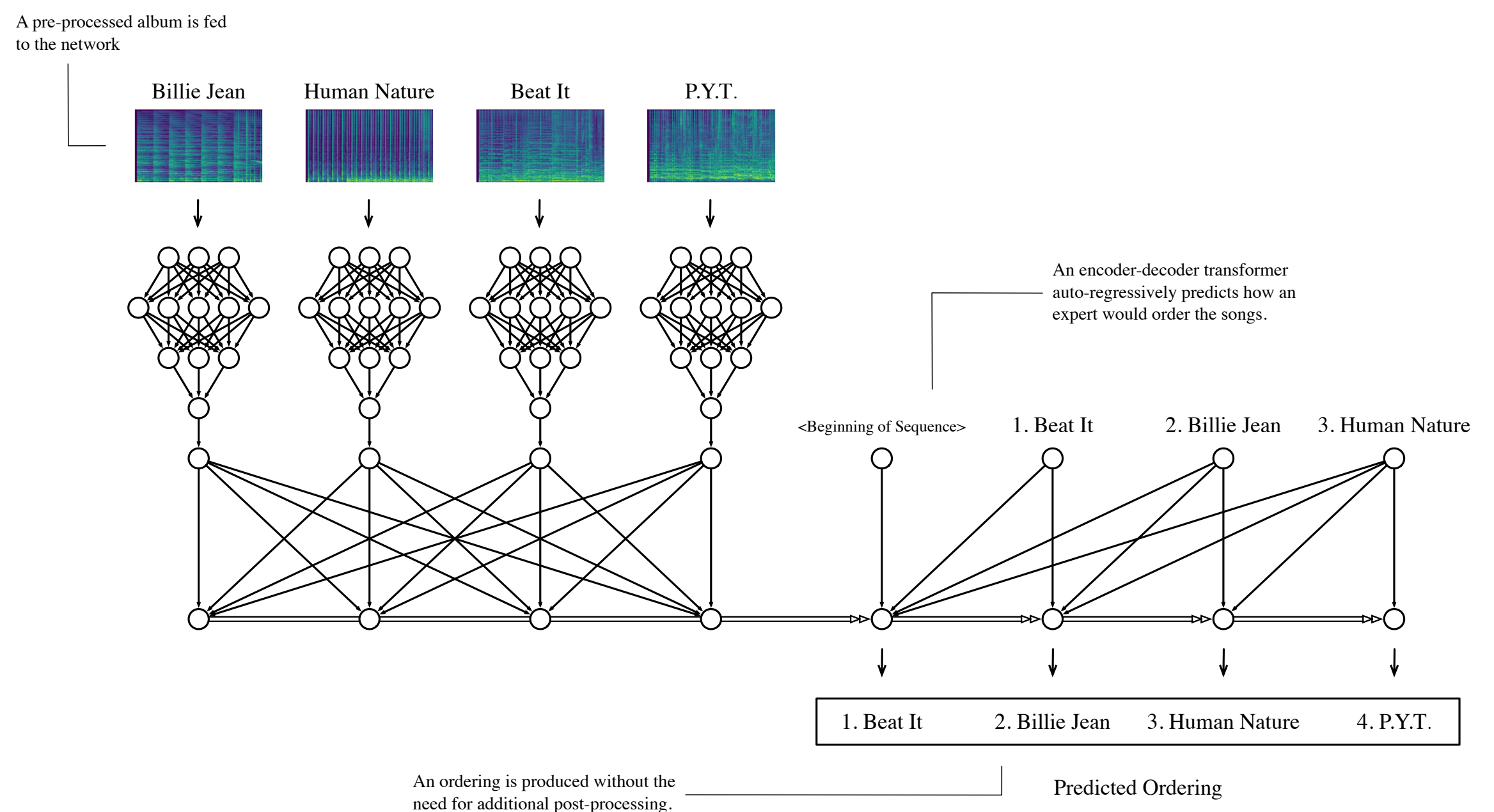2. **One-click to create automatic orderings**
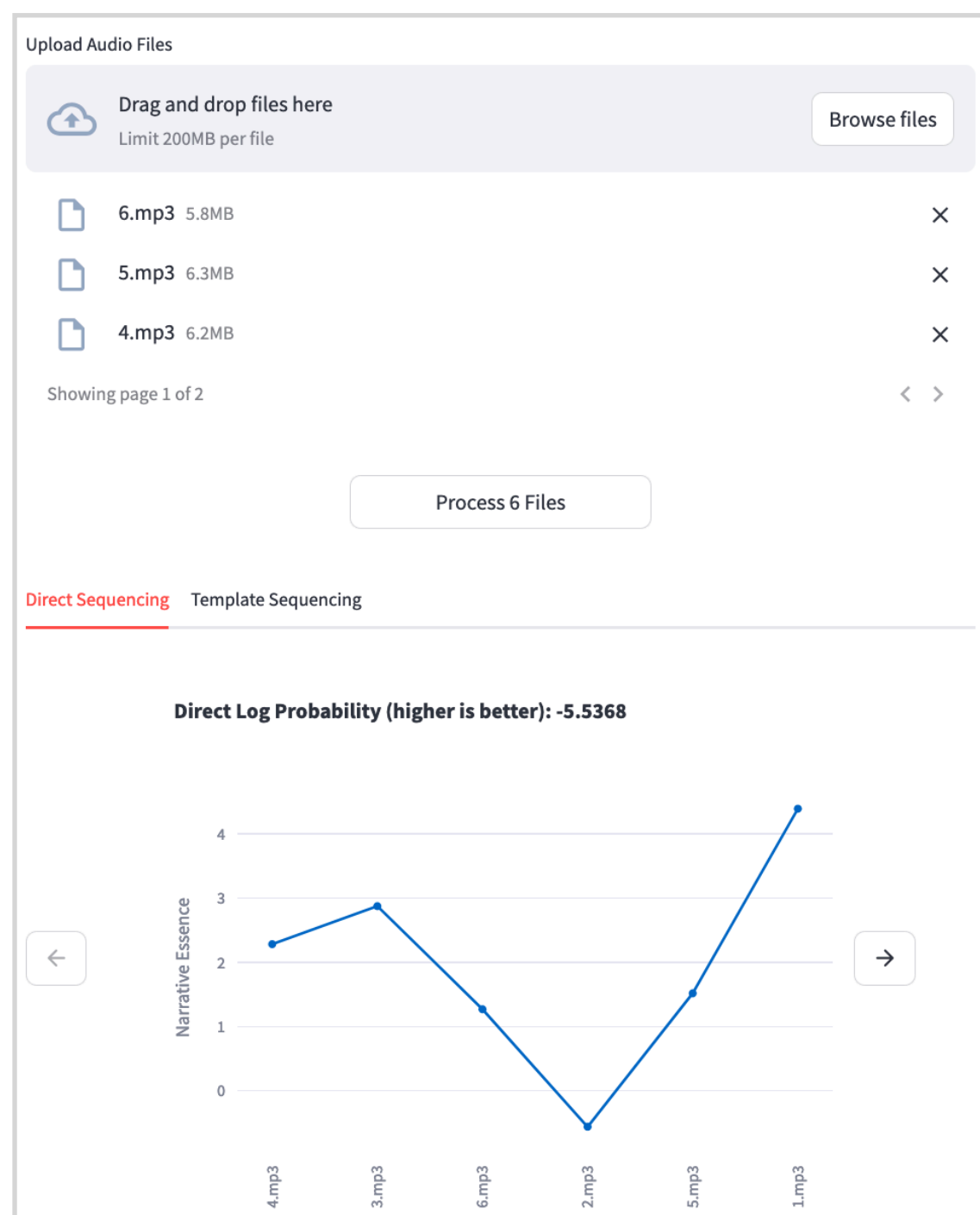
Performance

The direct approach outperforms random shuffling, but falls short of narrative essence.


Direct Approach

The encoder block of a transformer receives the features of the songs in a shuffled order. The decoder auto-regressively predicts a sensible order for the songs.

simplify

Narrative Essence Approach

A low-dimensional representation of the songs features called *narrative essence* is learned using contrastive methods. A genetic algorithm finds several prototypes of narrative curves. A curve-fitting algorithm orders a given album according to one of the prototypes [1].
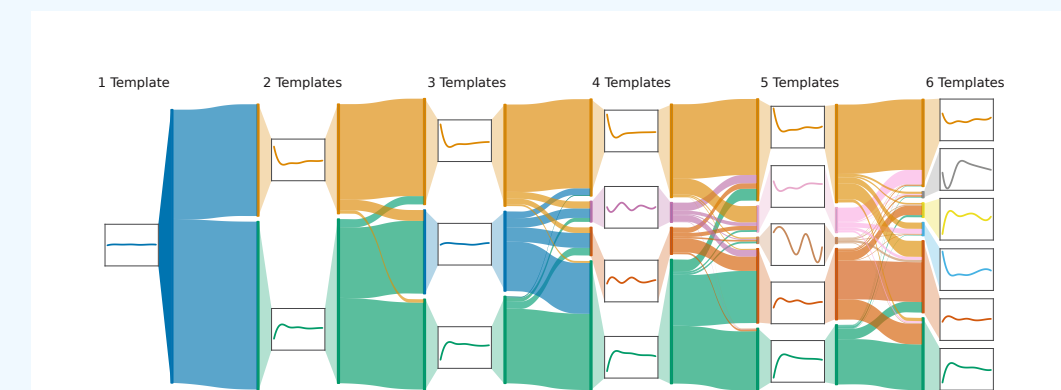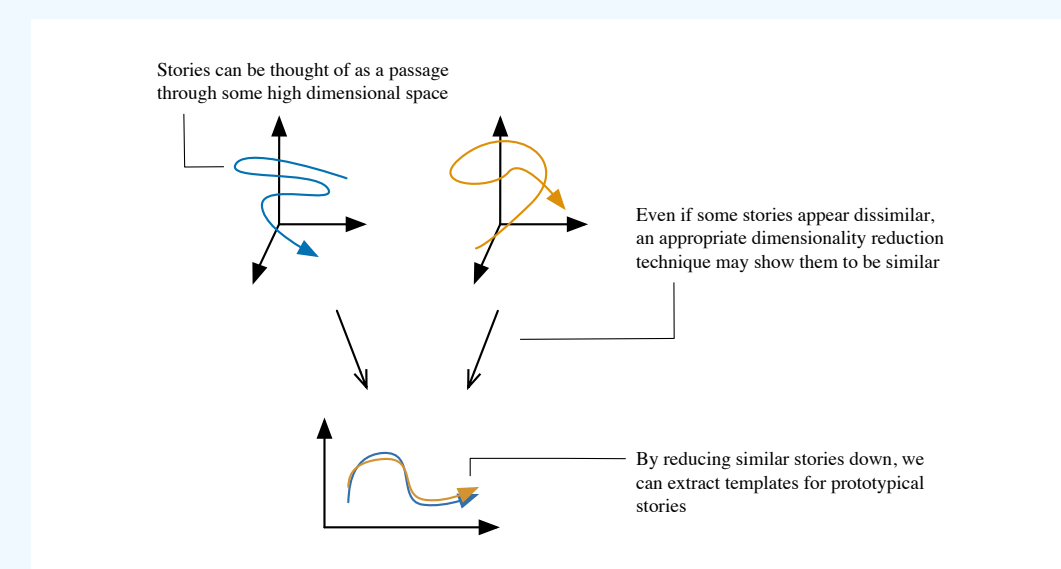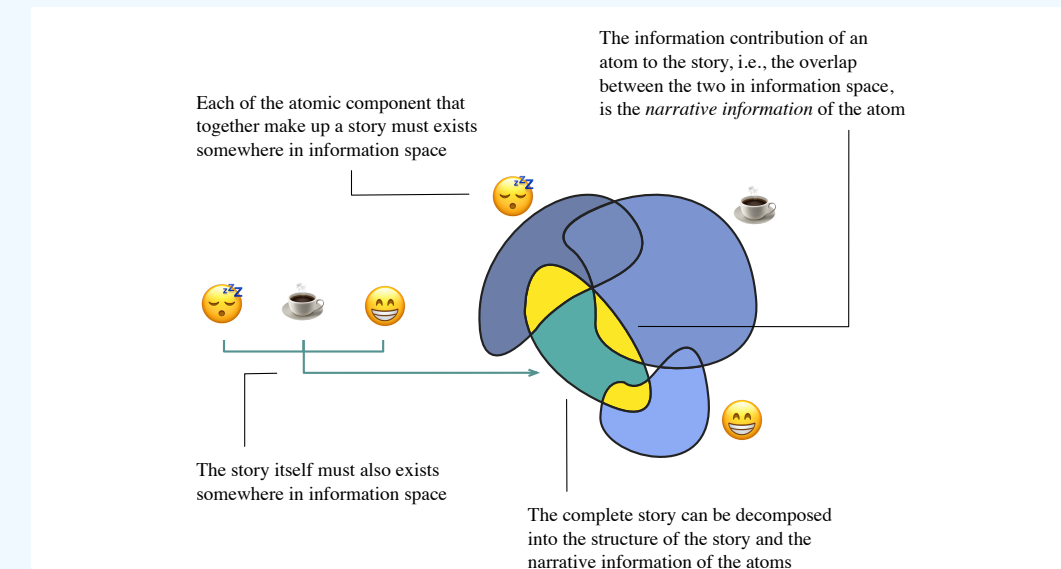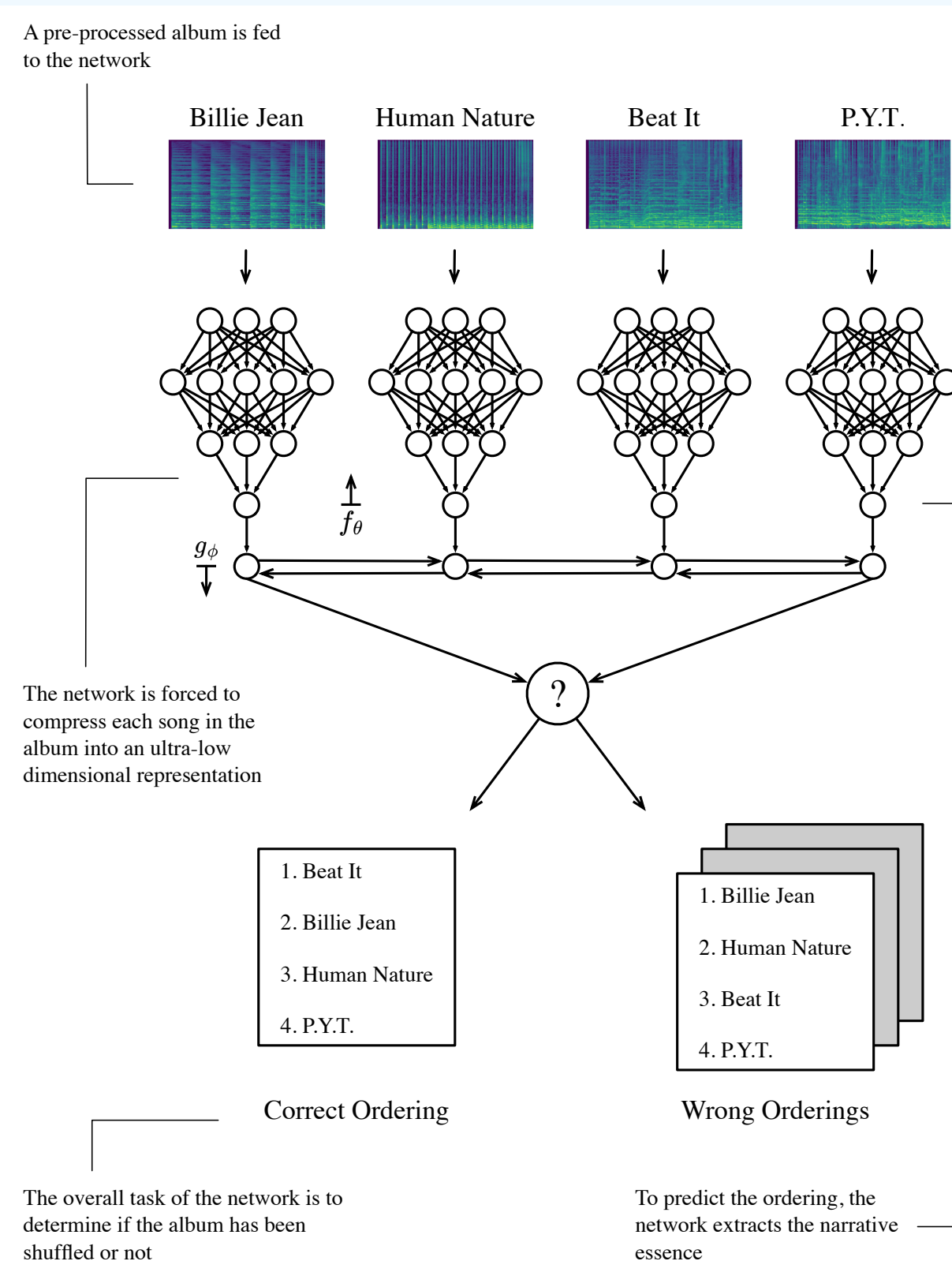
[1] D. R. Ashley, V. Herrmann, Z. Friggstad and J. Schmidhuber, "On the Distillation of Stories for Transferring Narrative Arcs in Collections of Independent Media," in *IEEE Transactions on Pattern Analysis and Machine Intelligence*, doi: 10.1109/TPAMI.2024.3480702.

Istituto Dalle Molle di studi sull'Intelligenza artificiale
IDSIA

Paper

Web UI

KAUST