

# Paper reports – Mohammad Osoolian

**Paper Title:** Exploring XAI for the Arts: Explaining Latent Space in Generative Music

**Paper Link:** [\[2308.05496\] Exploring XAI for the Arts: Explaining Latent Space in Generative Music \(arxiv.org\)](https://arxiv.org/abs/2308.05496)

**Submit Date:** 10 Aug 2023

**What is paper about:** This paper discusses explainability of Creative AI models. specially, in case of music generating models and presents a new model that is real-time and has understandable features that can be debugged by user.

## Abstract:

The article discusses the potential of Explainable AI (XAI) to enable interactive and co-creative AI systems that collaborate with humans in creative endeavors. For this purpose, creative AI models should be designed with eXplainable AI features that are inspectable, understandable, and modifiable to support debugging. The article presents a case where a latent variable model for music generation, specifically an extension of MeasureVAE, is made more explainable.

## Background:

- Creative AI
- MeasureVAE
- Explainable AI
- Latent Space
- Debugging in AI

## Challenge:

There are Creative models trains to generate music based on the input music However only a few creative AI systems explain what their models are doing, how they do it, and why. This makes debugging such models and their output problematic. Also many of those models are not real-time which doesn't let the user to interact with.

## New Ideas:

The point if this article is to make a new AI model that is explainable to users and let them know how changing some parameters would generate new music. Also the model must be able to explain it's chooses for musical notes and show to the use how exactly the output is generated.

## Results:

Authors have created a model which acceptable in explainability measures. They have increased the explainability of the AI in two ways: i) key parts of the AI model are exposed to the user in the interface and meaningfully labelled (in this case, with musical features), and ii) the real-time interaction and feedback in the UI allows people to explore the effects of these features on the generative music and thereby implicitly learn how the model works.

### My Idea for the challenge:

The relation between AI art and human can be simplified by making meaningful features of arts and learn the models based on these features. In this way, Latent Space of models can be much more understandable for human and generating process is clearer.

### My Idea to improve this article:

The musical features of output song that can be controlled by users are few. Also the features are not understandable for users with no previous knowledge of music. In conclusion, selecting features for user interface can be improved.