

# 22. Mustango: Toward Controllable Text-to-Music Generation

*Generative Music AI*

THE **SOUND** OF AI



Universitat  
Pompeu Fabra  
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**MTG**  
Music Technology  
Group



# **Mustango: Toward Controllable Text-to-Music Generation**

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# What will we cover?

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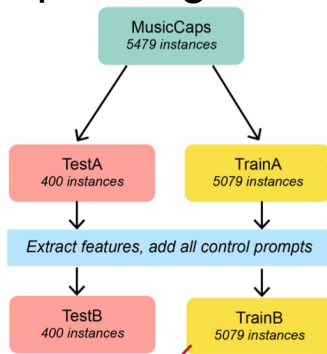
- Mustango approach + architecture
- Usage to generate music

# Mustango: approach

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## The MusicBench dataset:

audio tracks with corresponding natural language descriptions of music features



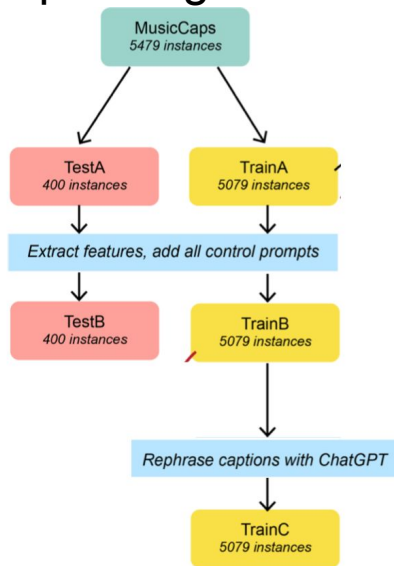
Andrea Agostinelli, Timo I Denk, Zalán Borsos, Jesse Engel, Mauro Verzetti, Antoine Caillon, Qingqing Huang, Aren Jansen, Adam Roberts, Marco Tagliasacchi, et al. 2023. **Musiclm**: Generating music from text. *arXiv preprint arXiv:2301.11325*.

# Mustango: approach

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## The MusicBench dataset:

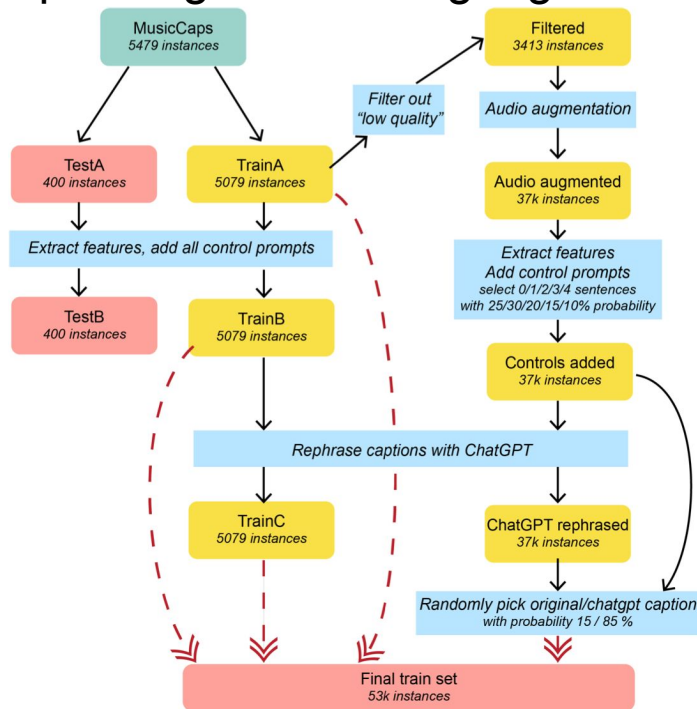
audio tracks with corresponding natural language descriptions of music features



# Mustango: approach

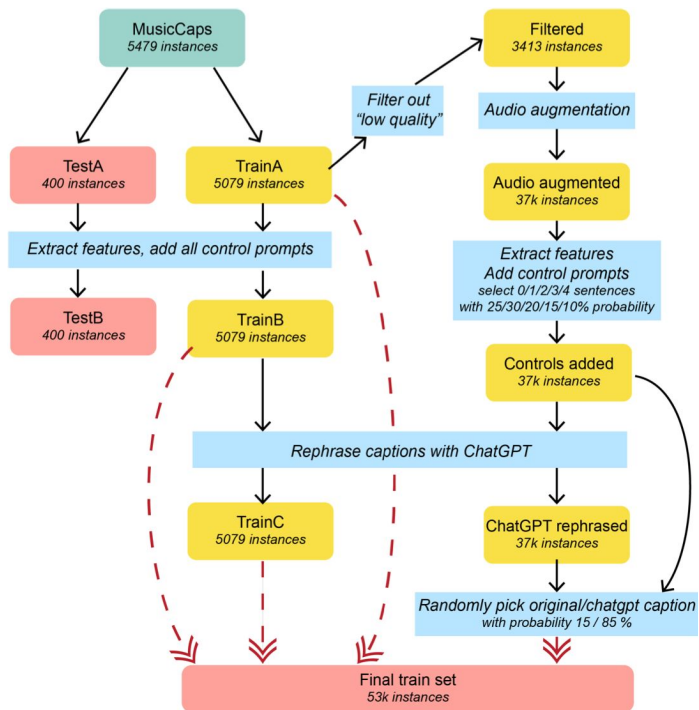
## The MusicBench dataset:

audio tracks with corresponding natural language descriptions of music features





# Mustango: approach



## Summary

### MusicBench (a GPT-powered dataset)

- A vast dataset of high-quality audio tracks
- Each paired with descriptions that highlight musical characteristics
  - key
  - rhythm
  - tempo
  - chord progression
  - etc.



# Mustango: approach

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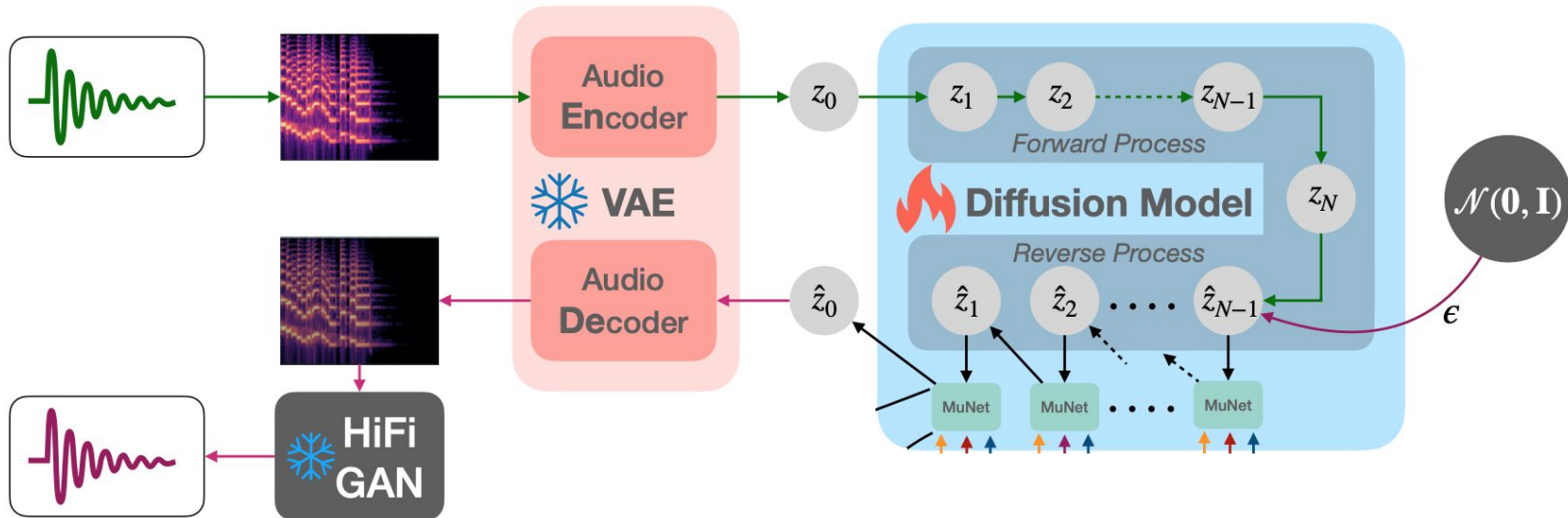
## **Architecture**

A. Latent Diffusion Model

B. MuNET

# Mustango: approach

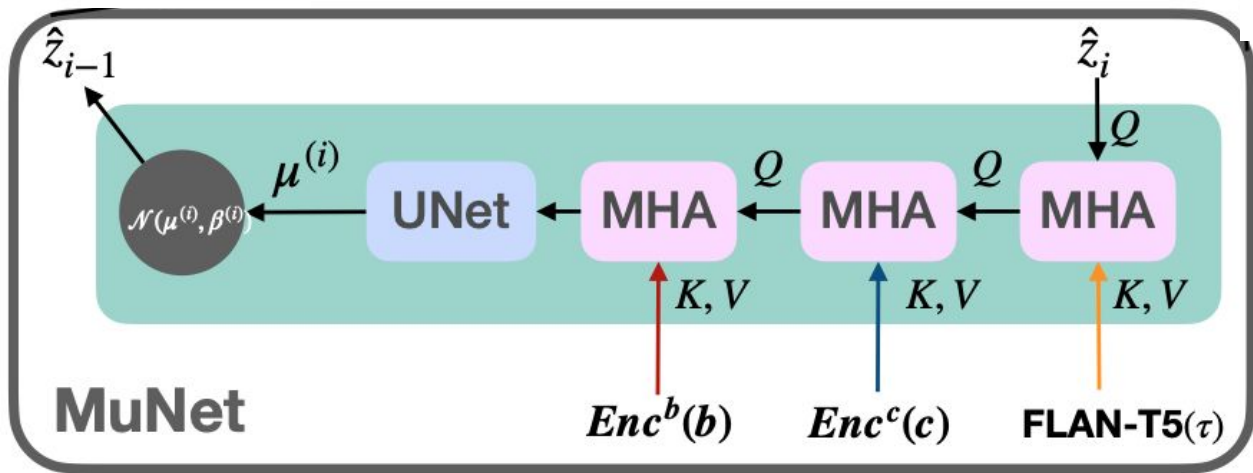
## Latent Diffusion Model



## Audio encoding and synthesis

# Mustango: approach

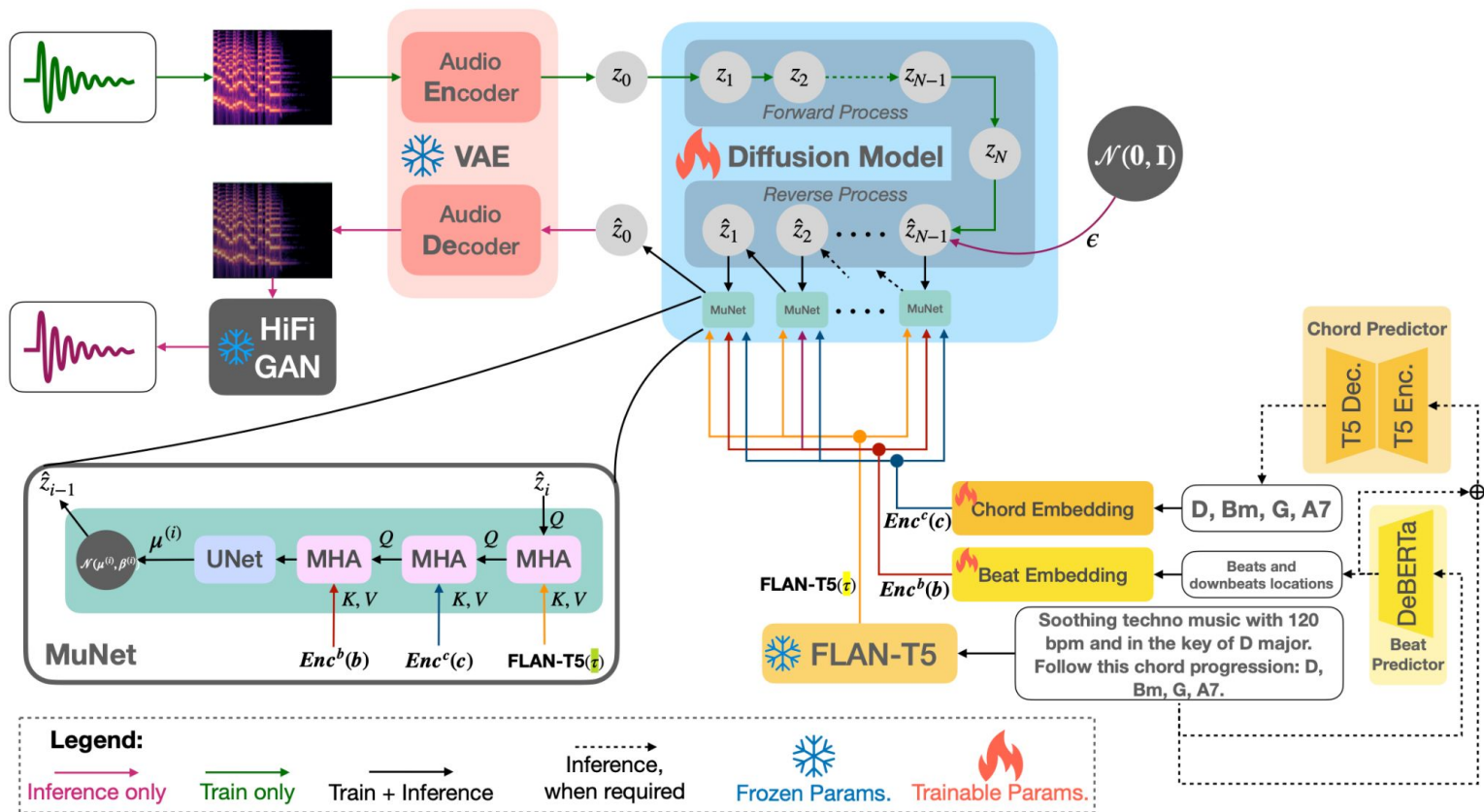
## MuNet: Music-Domain-Knowledge-Informed UNet



*tamps:*  $t_1, t_1 + t_2, t_1 + t_2 + t_3 \dots, Max Beat.$

## Conditioning of the audio synthesis

# Mustango





**<https://replicate.com/declare-lab/mustango>**

