

THE AI VIOLINIST

Crafting notes beyond human

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ABOUT ME



Dynamic Data Scientist

**Sr. Manager Analytics &
Audience Insights, Events**

**Always curious, always
learning**

AGENDA

01

Objectives

02

Data Overview

03

Technical
Architecture

04

Model Analysis

05

Final
Composition

06

Next Steps

THE VISION

Teaching machines to create violin music on their own, and paving the way for new forms of artistic expression where AI plays a leading role in the orchestra.

THE MISSION

- 01 Audio Conversion
- 02 Audio Prediction
- 03 Audio Generation



DATA

- 🎵 1,500 / 30s Violin Tracks - Spotify
- 🎵 688 Spectrograms
- 🎵 150+ MIDI Files

LIMITATIONS

- 🎵 The Power Struggle
- 🎵 Multiple Model Complexity
- 🎵 Harmonizing with Failure



TECHNICAL ARCHITECTURE

Business
Objectives

Data
Overview

Technical
Architecture

Model
Analysis

Final
Composition

Next Steps

Convert to MIDI

- ♪ CREPE Pitch Extraction
- ♪ Rhythm & Tempo
- ♪ Pitch & Rhythm Alignment

Generate Music

- ♪ Convert MIDI to WAV
- ♪ Evaluation Metrics
- ♪ Comparative Analysis

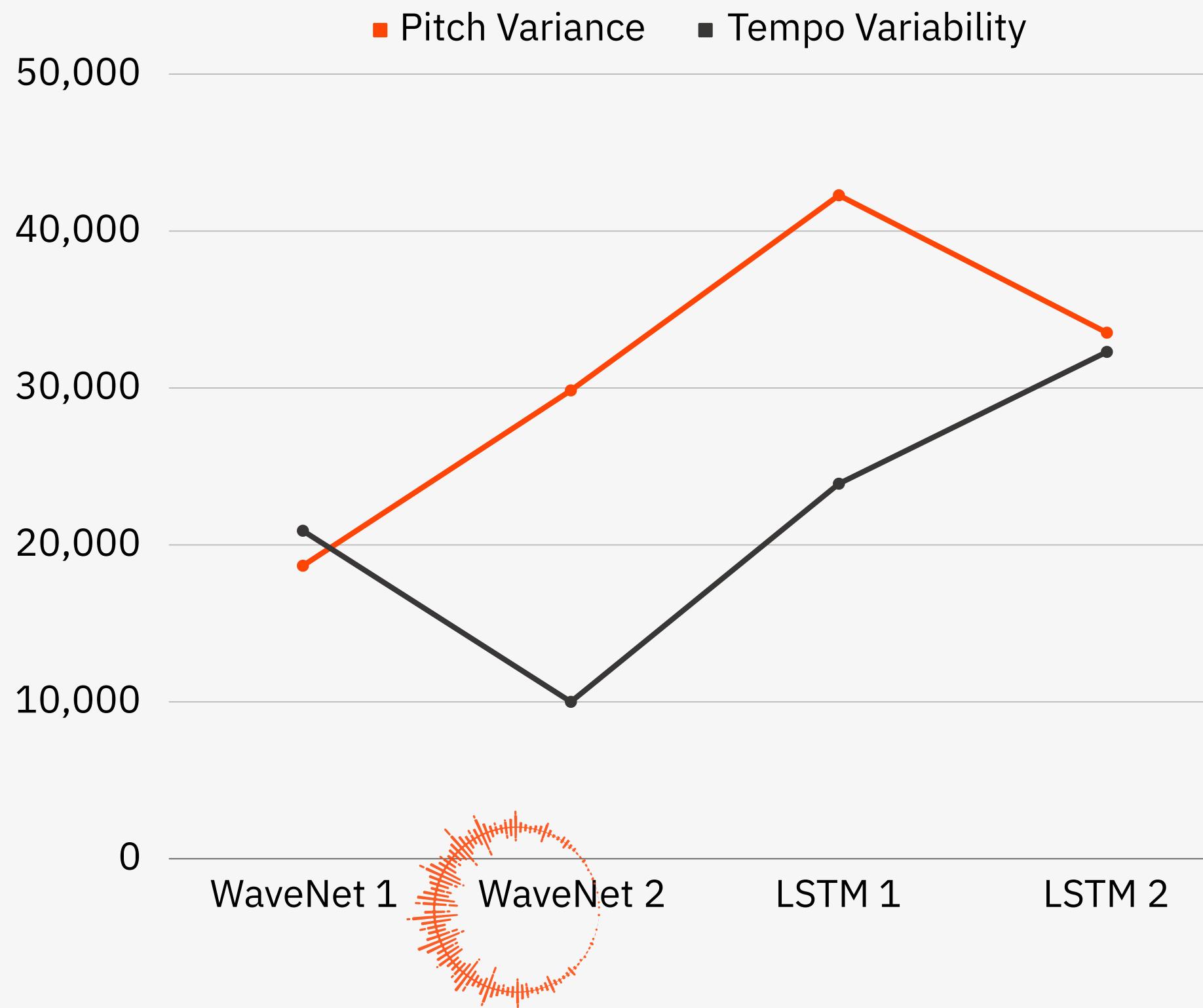
WaveNet & LSTM

- ♪ Loss of Error
- ♪ Accuracy

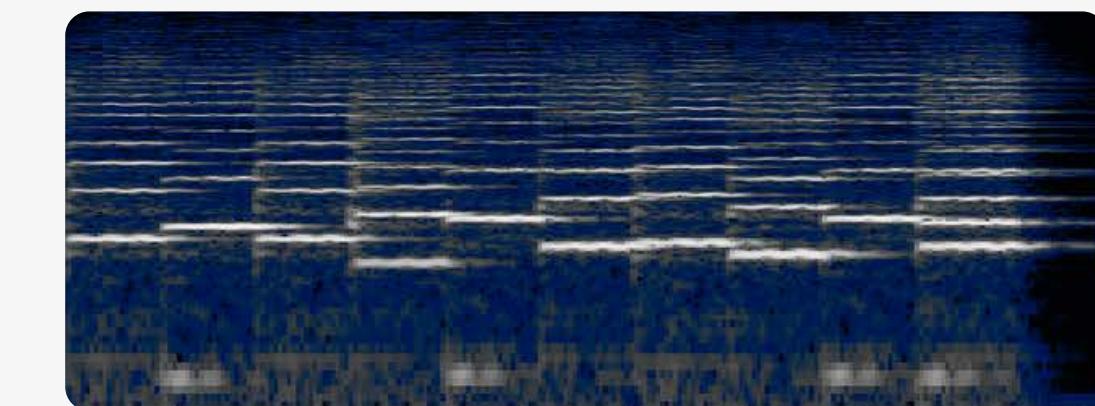
Pre-trained Model

- ♪ Jukebox

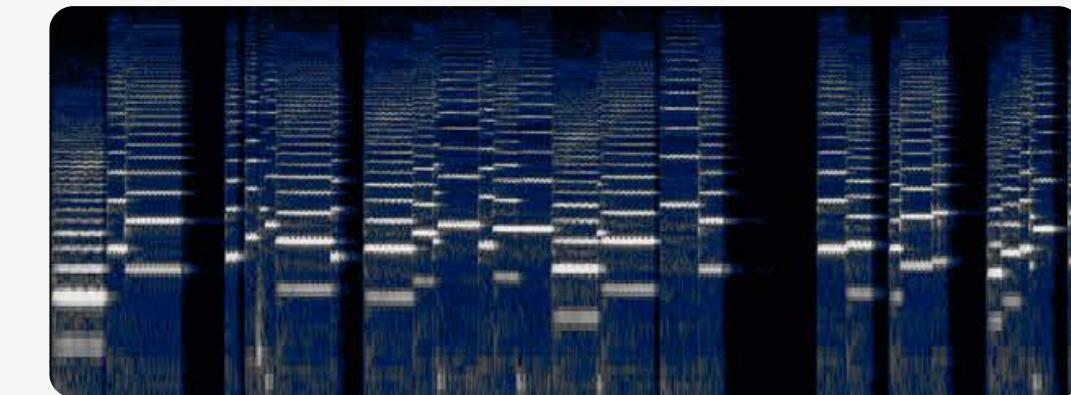
PITCH & RHYTHM VARIANCE

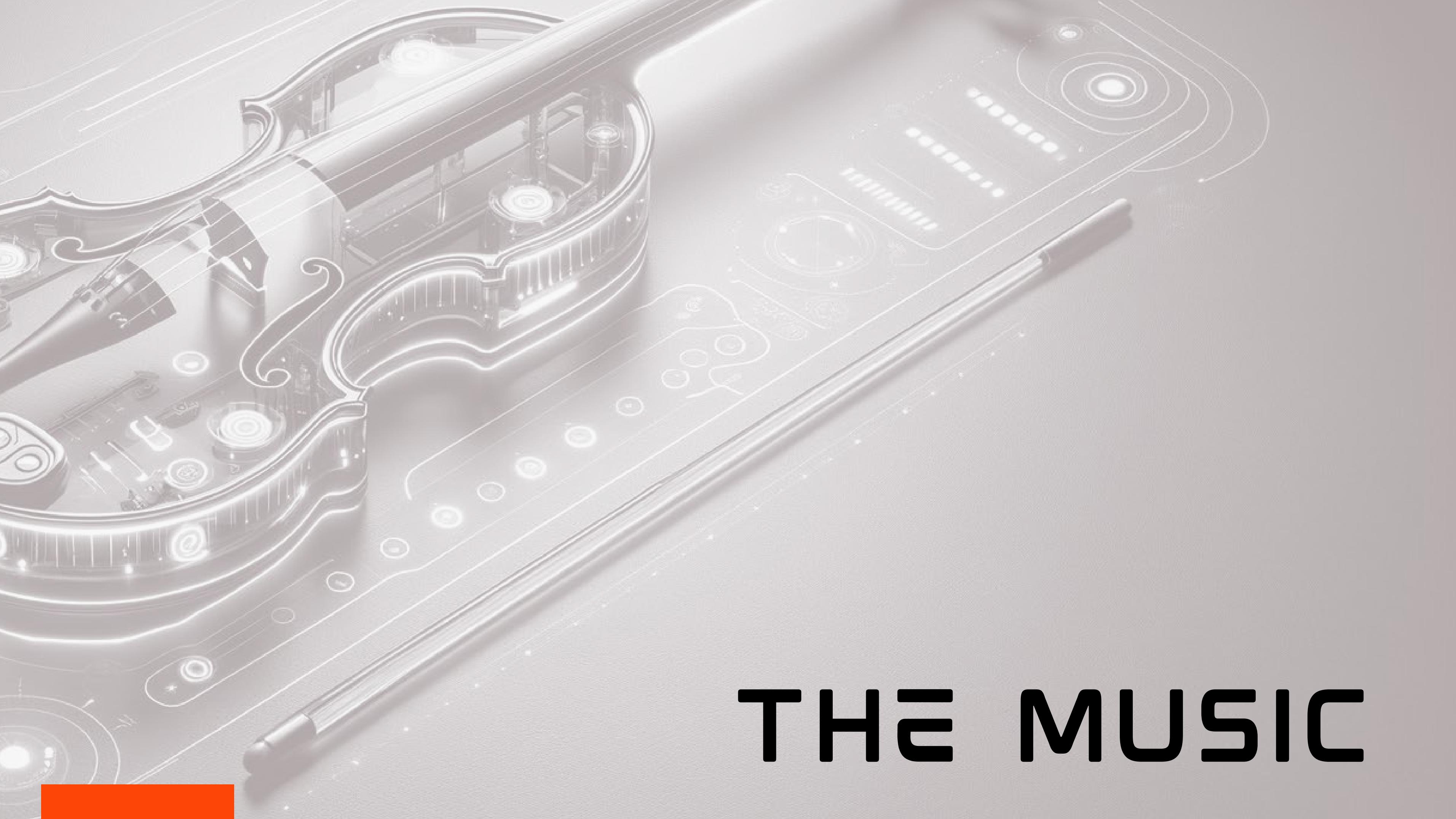


FREQUENCY



LSTM





THE MUSIC

WAVENET



LSTM



FINAL COMPOSITION



NEXT STEPS

This project shows that AI can understand music and create it, and the results are pretty impressive, even with significant resource limitations.



♪ Boosting The Tech

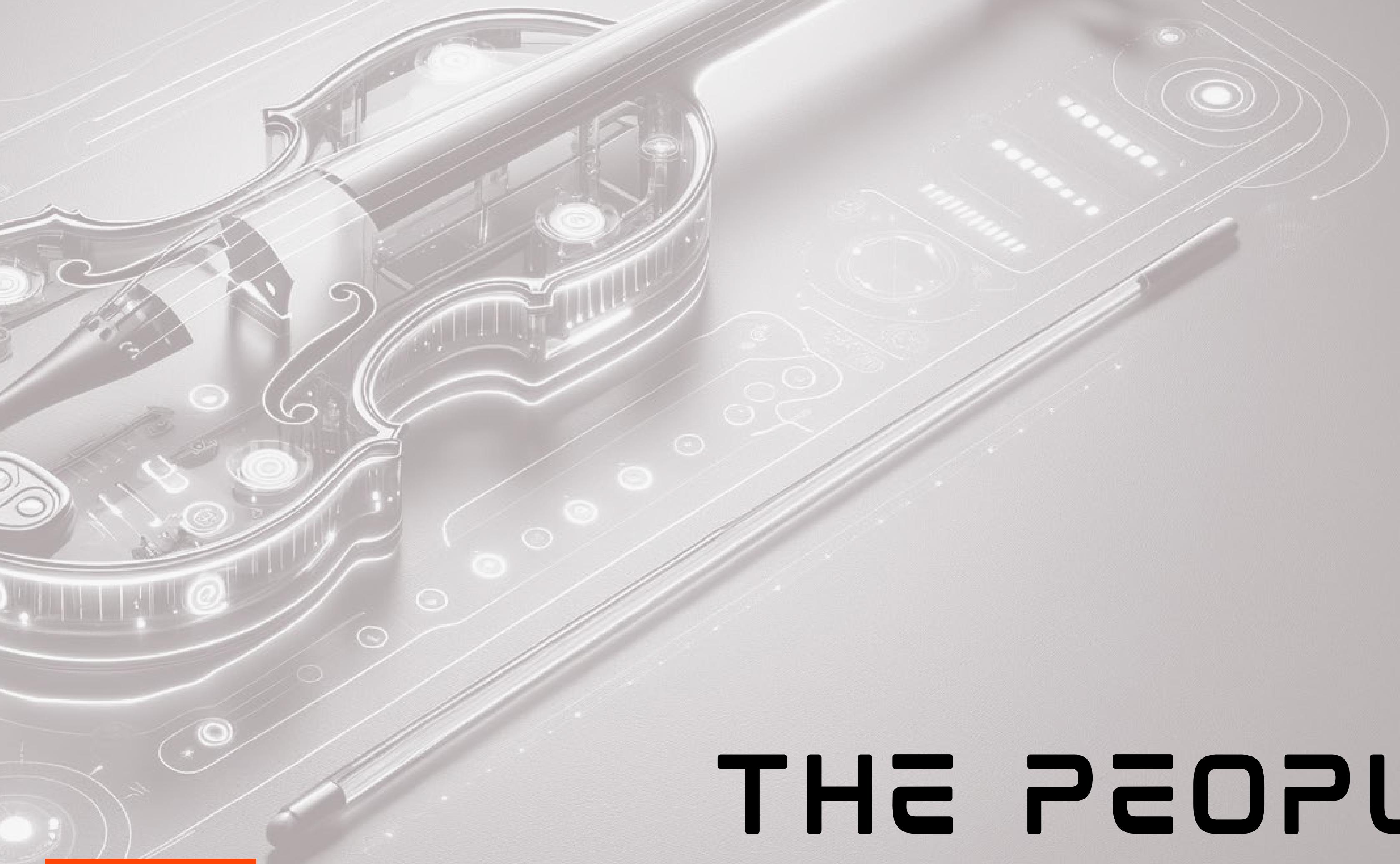
More power! I'll need to beef up the computational capabilities to push these models further.

♪ Refining MIDI Conversion Techniques

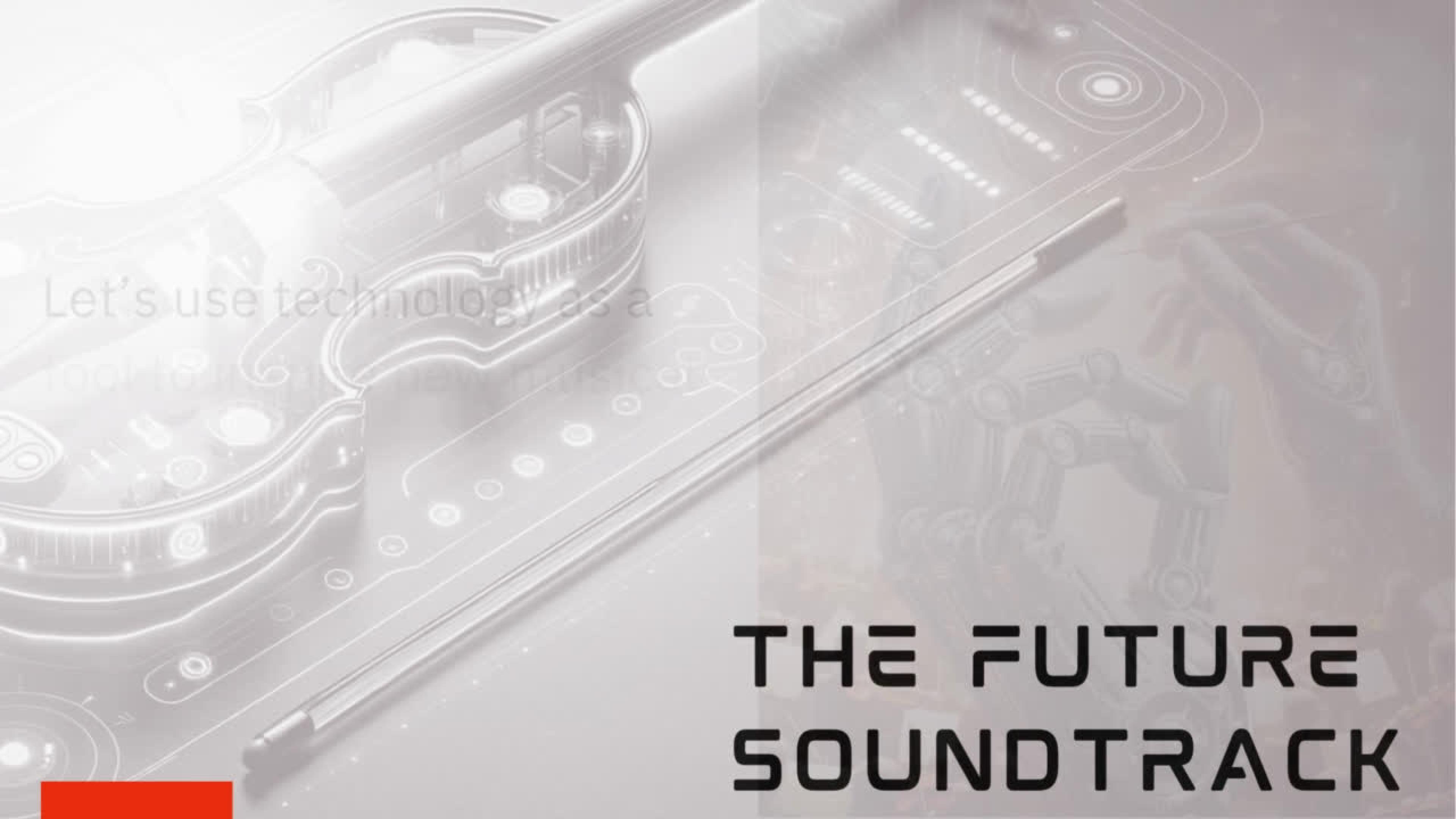
Continuous improvement and fine-tuning of the models to enhance the quality and diversity of the generated music starts with high quality audio.

♪ A Symphony of Sounds

Why stop at violins? There's a whole world of instruments and styles to explore.



THE PEOPLE



Let's use technology as a
tool to help us play better

THE FUTURE SOUNDTRACK