

Project README

Here are the instructions to set up and run your AI Music Studio project.

AI Music Studio v5

An LLM-Chained Orchestrated Hub for AI Music Generation, powered by a procedural engine and designed for direction by Gemini.

🎵 Features

- * **Chained-Core Architecture**: A modular system where different AI agents handle specific musical tasks (Theme, Harmony, Rhythm, Melody, Synthesis).
- * **Producer & Genre Emulation**: Generates music in the style of various genres and iconic producers using a deep procedural knowledge base.
- * **Real-time Audio Synthesis**: Utilizes Tone.js for in-browser audio generation and playback.
- * **Dynamic Controls**: Adjust settings like Genre, Producer Style, Tempo, and Key.
- * **Audio Export**: Save your 120-second masterpiece as a high-quality `.wav` file.
- * **Live Visualizer**: See the waveform of your creation in real-time.

🛠️ Setup and Installation

This project is a single-file React application built with Vite and TypeScript.

**1. Prerequisites

- * [Node.js](https://nodejs.org/) (version 18 or newer)
- * `npm` or `yarn` package manager

**2. Create a New React Project

Open your terminal and run the following commands to create a new project using Vite, which is fast and efficient for modern web development.

```
``bash
# Create a new Vite project with the React + TypeScript template
npm create vite@latest ai-music-studio -- --template react-ts

# Navigate into your new project directory
cd ai-music-studio
``
```

**3. Install Dependencies

The application requires several libraries for audio processing, file handling, and UI.

```
``bash
npm install tone jszip file-saver
``
```

- * ``tone``: The core Web Audio framework for creating interactive music in the browser.
- * ``jszip``: A library for creating `.zip`` files (though the stem export feature is deferred, this might be useful for future enhancements).
- * ``file-saver``: A utility for saving files on the client-side, essential for the "Save WAV" button.

4. Replace the Source Code

1. Navigate to the ``src/`` directory inside your new ``ai-music-studio`` project.
2. Delete the existing ``App.css`` and ``App.tsx`` files.
3. Create a new file named ``App.tsx``.
4. Copy the entire code block from the ****AI Music Studio v5 - Complete Application**** section above and paste it into your new ``src/App.tsx`` file.
5. Open ``src/index.css`` and replace its contents with the following to enable a modern dark theme and layout:

```

```css
@tailwind base;
@tailwind components;
@tailwind utilities;

body {
 margin: 0;
 font-family: -apple-system, BlinkMacSystemFont, 'Segoe UI', 'Roboto', 'Oxygen',
 'Ubuntu', 'Cantarell', 'Fira Sans', 'Droid Sans', 'Helvetica Neue',
 sans-serif;
 -webkit-font-smoothing: antialiased;
 -moz-osx-font-smoothing: grayscale;
}
```

```

(Note: For TailwindCSS to work, you would need to install and configure it. For simplicity, the inline styles and basic CSS within the `App.tsx` will provide styling without this step, but for full fidelity, a Tailwind setup is recommended).

5. Start the Development Server

You are now ready to run the application.

```

```bash
npm run dev
```

```

This command will start the Vite development server. Open your web browser and navigate to the local URL provided in the terminal (usually ``http://localhost:5173``).

🚀 How to Use

1. ****Configure Settings****: On the left panel, choose a ``Genre``, ``Producer Style``, ``Key``, and ``Tempo``. The seed is pre-filled but can be changed for different random variations.
2. ****Generate Music****: Click the ****"Generate"**** button. The orchestrator will run through the five cores: Theme, Harmony, Rhythm, Melody, and Synthesis. You can watch the progress in the "Orchestrator" panel and see detailed logs in the "Logs" section.

3. **Playback & Visualize**: Once generation is complete, the **"Play"** button will become active. Click it to listen to your 120-second audio track. The audio visualizer will display the waveform in real-time.
4. **Save Your Creation**: If you like what you hear, click the **"Save WAV"** button. Your browser will prompt you to download a `.wav` file of the full mix. button. Your browser will prompt you to download a `.wav` file of the full mix.