**Slide 1**

Good morning everyone. My name is Pablo Egger Prieto, and today I’ll be presenting my research on semantic title generation for song lyrics using AI models and prompt engineering. This project explores how well AI can generate meaningful song titles from lyrics, the impact of prompt engineering on improving the results, and how effectively AI can express emotions compared to humans.

**Slide 2: Content Page**

Here is a quick outline of what I will be covering today.

**Slide 3: Problem Description**

Every song tells a story and evokes emotions. But how do we sum that up in just a few words? Titles are responsible for a listener’s first impression and overall experience. The challenge is that songs often use abstract language, metaphors, and poetic expressions—things AI struggles with. Unlike us humans, AI lacks intuition and context, making it harder to capture the real emotions transmitted by a song.

**Slide 4: Goal and Research Question**

The main goal of this project is to use AI models to predict song titles based on lyrics, and evaluate how well to do so. Moreover, I wanted to look closer at how strong the predicted title is from an emotional perspective, and compare it to the actual title, chosen by a human, usually the artist itself.

Specifically, I want to be able to answer the following research question:

What is the impact of prompt engineering on the **semantic accuracy**, **emotional resonance**, and **strength** of AI-generated song titles?

**Slide 5: Dataset and Model**

**Slide 6: Methodology**

At a high level, the methodology is quite straightforward: We use as input the lyrics, run it through the model, and get a song title as output.

**Slide 7:**

However, if we break it down further, I used 4 different prompts to run through the model.

Here are the four prompts I used. [read prompts and explain why these]

However, let’s keep breaking the methodology down, and focus specifically on the output.

**Slide 9:**

As I already said, the ouput of the model is a song title. However, simply determining whether it is exactly the same as the true title would not be sufficient. Therfore, we can calculate the semantic similarity between the predicted title and the true title.

**Slide 10: Semantic Similarity Score**

Why do we do this? Because simply comparing the predicted with the true title it wouldn’t tell us anything about how incorrect the incorrect predictions are.  
After creating embeddings of the titles, I used the SentenceTransformer model and calculated the cosine similarity like this.

Here is an example [show Rockstar vs Party Animal example]

**Slide 11: Emotional Resonance Score**

Emotional Resonance is defined as the “the process where one person's emotions significantly impact another, leading to a shared emotional experience”. To measure this, I created my own unique and novel measure of emotional resonance.

I found a pre-trained model that can perform sentiment analysis to determine how positive or negative a sentence is. The issue with this model however is that it calculates this by returning both the strength of the sentiment as well as its confidence level. I noticed that this is not ideal for my case, as the titles are very short, meaning that even the slightest deviation in them may return a very different sentiment strength, while being less certain of this value (lower confidence)