

# Review of Project Proposal: Graph Neural Networks for Music Genre Classification

## Summary (25%)

**Major Claims of the Project:** The proposal puts forward that using Graph Neural Networks (GNNs) for music genre classification could bring advantages over traditional deep learning models like CNNs and RNNs. The main goal is to capture complex relationships between audio features and genres, which could lead to better classification results.

**Relevance to CS5814:** This project fits perfectly with the scope of CS5814, which centers on deep learning algorithms and their real-world applications. It dives into advanced concepts like GNNs, showing how these can be applied practically in classifying music genres, all while building on core knowledge of network architectures.

## Reflection (40%)

**Comprehensiveness:** The proposal does a great job of outlining the methodology. It covers related work, feature extraction, model setup, and training plans. It also specifies the datasets and libraries (like PyTorch Geometric) that will be used, making the approach straightforward to follow.

**Uniqueness:** What makes this project stand out is its focus on using GNNs for music genre classification, which isn't as common as using CNNs or RNNs. This adds a fresh angle, especially by borrowing ideas from recommendation systems.

**Adherence to Guidelines:** The proposal checks all the boxes for submission requirements. It has sections like introduction, related work, contributions, datasets, methodology, and task distribution, which follow the standard academic structure for project proposals.

**Technical Soundness and Analysis:** Technically, the proposal is well-thought-out and discusses the pros and cons of using GNNs in this domain. However, adding more details on potential preprocessing hurdles or optimization strategies for GNNs would make it even better.

**Completeness:** The proposal thoroughly covers the problem, including dataset choice, feature extraction, and model architecture. That said, it could be improved with a clearer breakdown of evaluation metrics and more in-depth comparisons with traditional models.

## Pros/Cons (20%)

### Strengths:

- **Novelty:** The use of GNNs in music genre classification is an innovative idea.
- **Technical Plan:** The step-by-step plan for data prep, model building, and evaluation is solid.
- **Relevance:** The project is well-aligned with CS5814's focus on deep learning, offering a modern take on neural network applications.

### Weaknesses:

- **Evaluation Plan:** Although metrics and comparisons are mentioned, there isn't enough detail on which specific metrics (like accuracy or F1 score) will be highlighted.
- **References:** The references included are appropriate, but adding more citations that directly compare different network architectures for audio tasks would add depth.
- **Challenges:** The proposal could discuss potential challenges and how to overcome them (like computational cost or overfitting) more robustly.

## Presentation Quality (15%)

**Clarity:** The proposal is clear and flows logically from one section to another, making it easy to read.

**Grammar and Style:** The language is clean, with no noticeable grammar or typographical errors, which boosts readability.

**Structure:** The structure is good, with clearly defined sections that make it easy to navigate. Including some diagrams or figures, especially to illustrate GNN structures or data flow, could make the explanations even clearer.

## Overall Feedback

Overall, this proposal to use GNNs for music genre classification is strong and well-suited to the course's emphasis on deep learning. To make the submission even stronger, adding more specifics on evaluation metrics, potential challenges, and expanding the reference list would be beneficial.