**Title : Emotion Based Music Recommendation System by**

***Mikhail Rumiantcev, Oleksiy Khriyenko University of Jyväskylä Jyväskylä, Finland***

**Abstract—** Nowadays, music platforms provide easy access to large amounts of music. They are working continuously to improve music organization and search management thereby addressing the problem of choice and simplify exploring new music pieces. Recommendation systems gain more and more popularity and help people to select appropriate music for all occasions. However, there is still a gap in personalization and emotions driven recommendations. Music has a great influence on humans and is widely used for relaxing, mood regulation, destruction from stress and diseases, to maintain mental and physical work. There is a wide range of clinical settings and practices in music therapy for wellbeing support. This paper will present the design of the personalized music recommendation system, driven by listener feelings, emotions and activity contexts. With a combination of artificial intelligence technologies and generalized music therapy approaches, a recommendation system is targeted to help people with music selection for different life situations and maintain their mental and physical conditions.

**Conclusion and Future Work -** Paying attention to various factors, such as particular context, personal parameters, feelings and emotions, is highly important to a decision-making process of recommendations. Contemporary music recommendation systems face the gap in personalization, human feelings, contextual preferences and emotional factors while suggesting music. In this paper, we proposed emotion-driven recommendation system with respect to personalized preferences and particular life and activity contexts. The approach presented in this study is targeted to provide maximum benefits for people from the music listening experience. It is important to make the system aware of how it is doing the recommendations, to continuously improve the music selection. By feeding the data from various sources, the system is aimed to listen to each particular user and understand their purposes of listening, feelings and contextual preferences to select the best-suited music pieces for them. We observed what kind of data is needed for the recommendation system and how it can be fetched. Main data processing tools are clarified in the scope of this paper and the experimental prototype has been elaborated. However, to achieve maximum accuracy in predictions and make them more or less relevant, machine learning systems require a large amount of the data to train the models. At this moment the data collection is in active process. At the same time this kind of system requires significant clinical research and collaboration with psychologists to tune and test the model for real recommendations and reduce possible associated risks. Further work on the implementation and testing of the recommendation engine, empirical experiments and impact evaluations are considered for the next step when the appropriate amount of the data will be collected. Music creation by artificially intelligent systems with particular music attributes to move states of human emotions can be considered as the further elaboration work in this context.

**Summary :**

1. The paper proposes an **emotion-driven music recommendation system** that personalizes music selection based on a user’s emotions, activities, and context. Unlike traditional systems, this approach integrates **emotional intelligence** with AI and music therapy concepts.
2. **Parameters used:**

* **Music features** (energy, tempo, loudness, valence, lyrics meaning).
* **Contextual factors** (activity, location, time, surrounding environment).
* **Physiological data** (heart rate, respiration, stress, body movement).
* **Psychological factors** (mood, listening reasons, user feedback).
* **Interactive behavior** (skipping, replaying, likes/dislikes, listening duration).

1. Data is collected via **MuPsych** tool, surveys, wearable sensors (smartwatches, trackers), mobile devices, and external services like Spotify or MusicBrainz. A **Personalized Emotion Transformation Model (PETM)** is used to adapt music recommendations for each individual. Machine learning methods like **LSTMs, Random Forests, and Reinforcement Learning** are applied for classification and adaptive playlist generation. The system continuously improves by learning from **real-time feedback and incremental data collection.**
2. **Future scope** includes large-scale data collection, clinical research with psychologists, and validation in real-world scenarios. Researchers plan to enhance robustness by integrating AI-generated music with targeted attributes to influence emotions directly.