

A Novel Visualisation Hat with AI Computer Music Generation

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Abstract

The integration of artificial intelligence with music generation and visualization offers new opportunities for creating immersive and interactive living environments. This paper explores the concept of embedding AI-driven music systems with visualization elements into a human hat. The AI system autonomously generates AI computer music. Simultaneously, visualization technologies such as LED light, and dynamic display translate musical features—such as rhythm, pitch, and intensity— into real-time visual effects into the hat. For example, bass frequencies is visualized as pulsing light patterns, while melodic progressions appear as flowing color transitions across the display integrated in the hat. By merging AI auditory computer music and visual stimuli, the hat becomes an interactive multimedia space that enhances relaxation, creativity, and social interaction. This convergence of AI music generation and visualization transforms ordinary living spaces into responsive, emotionally engaging environments that blend technology, art, and human experience. The work for this project is done in the context of EU Horizon Marie Curie research project Retex¹.

Keywords

AI computer music generation, visualization techniques, hats.

