

Study using a new interactive interface shows how music listeners think different emotions sound as music

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New research conducted by experts from Durham University's Department of Music found that people are able to convey particular emotions through music by changing certain elements of the musical tune.

The researchers created an interactive computer interface called EmoteControl which allows users to control six cues (tempo, pitch, articulation, dynamics, brightness, and mode) of a musical piece in real time.

The participants were asked to show how they think seven different emotions (sadness, calmness, joy, anger, fear, power, and surprise) should sound as [music](#). They did this by changing the musical cues in EmoteControl, essentially allowing them to create their own variations of a range of music pieces that portrayed different emotions.

In general, musical cues were used in a similar way to represent a specific emotion. For example, participants conveyed sadness in the music using a slow tempo, minor mode, soft dynamics, legato articulation, low pitch level, and a dark timbre.

Tempo and mode were the two cues that highly effected the emotion being conveyed, while dynamics and brightness cues had the least effect on shaping the different emotions in the music.

The researchers also found out that sadness and joy were amongst the most accurately recognized emotions, which correlate with previous studies.

Professor Tuomas Eerola of Durham University said that "this interactive approach allowed us to tap into the participants' perception of how different emotions should sound like in music and helped the participants create their own [emotional](#) variations of music that encompassed different emotional content."

This research and the EmoteControl interface have implications for other sectors where emotional content is conveyed through music, such as sound branding (marketing), music in film and TV, adaptive music in

gaming, as well as the potential to be used as an emotion communication medium for clinical purposes.

The research was published in *Music & Science*.

More information: Annaliese Micallef Grimaud et al, An Interactive Approach to Emotional Expression Through Musical Cues, *Music & Science* (2022). [DOI: 10.1177/20592043211061745](https://doi.org/10.1177/20592043211061745)

Provided by Durham University

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