

Based on the following scenario, find the most relevant academic references:
Recognizing the emotional state of a crowd for law enforcement and security by the combination of visual cues such as facial expressions and body gestures, and audio cues such as vocal intensity, speech rate, pitch, and tonal changes.

* Copilot

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crowd emotion recognition academic references multimodal emotion recognition visual audio cues

emotion recognition facial expressions body gestures speech rate pitch

emotion recognition law enforcement security site:arxiv.org crowd emotion recognition

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Crowd Emotion Recognition Based on...
acm · 1

Multimodal and Temporal Perception of Audio-...
ieee · 2

Effectiveness, Attractiveness, and...
frontiersin · 3

Emotion recognition in security: should it be...
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Recognizing the emotional state of a crowd for law enforcement and security by the combination of visual cues such as facial expressions and body gestures, and audio cues such as vocal intensity, speech rate, pitch, and tonal changes is an important area of research. Here are some relevant academic references that can be helpful:

1. "Crowd Emotion Recognition Based on Causal Spatiotemporal Structure" ¹: This paper discusses the recognition of crowd emotions and proposes a deep learning method for crowd emotion recognition tasks.

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embeds video clips using their audio-visual content, onto a metric space.

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✓ Searching for: emotion recognition crowd visual audio cues

✓ Generating answers for you...

Hello, this is Bing. I have found some academic references that might be relevant for your scenario. Here are the top three results:

- **Joint modelling of audio-visual cues using attention mechanisms for bimodal emotion recognition** ¹. This paper proposes a framework that combines visual and audio features with attention mechanisms to improve emotion recognition accuracy and robustness.
- **Multimodal Affect Models: An Investigation of Relative Importance of Audio and Visual Cues** ². This paper investigates how audio and visual cues contribute to the perception of static and dynamic aspects of emotion, and how different modalities can compensate for each other in noisy conditions.
- **Bimodal emotion recognition through audio-visual cues** ³. This dissertation explores how emotion recognition depends on emotion annotation, the perceived modalities, modalities' robust data representations, and computational modeling.

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