

Map, or AI-VEmoMAP, utilizes a large amount of this virtual emotion data to create a virtual emotion map that can be utilized for threat detection and crime prevention.

A notable advantage of 5G-I-VEmoSYS is that it allows emotion detection without revealing the face or other private parts of the subjects, thereby protecting the privacy of citizens in public areas. Moreover, in private areas, it gives the user the choice to remain anonymous while providing information to the system. Furthermore, when a serious emotion, such as anger or fear, is detected in a public area, the information is rapidly conveyed to the nearest police department or relevant entities who can then take steps to prevent any potential crime or terrorism threats.

However, the system suffers from serious security issues such as the possibility of illegal signal tampering, abuse of anonymity, and hacking-related cyber-security threats. Further, the danger of sending false alarms to authorities remains.

While these concerns do put the system's reliability at stake, Prof. Kim's team are confident that they can be countered with further research. "This is only an initial study. In the future, we need to achieve rigorous information integrity and accordingly devise robust AI-based algorithms that can detect compromised or malfunctioning devices and offer protection against potential system hacks," explains Prof. Kim, "Only then will it enable people to have safer and more convenient lives in the advanced smart cities of the future."

More information: Hyunbum Kim et al, Research Challenges and Security Threats to AI-Driven 5G Virtual Emotion Applications Using Autonomous Vehicles, Drones, and Smart Devices, *IEEE Network* (2020). [DOI: 10.1109/MNET.011.2000245](https://doi.org/10.1109/MNET.011.2000245)

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