
Remote Sensing of Stress

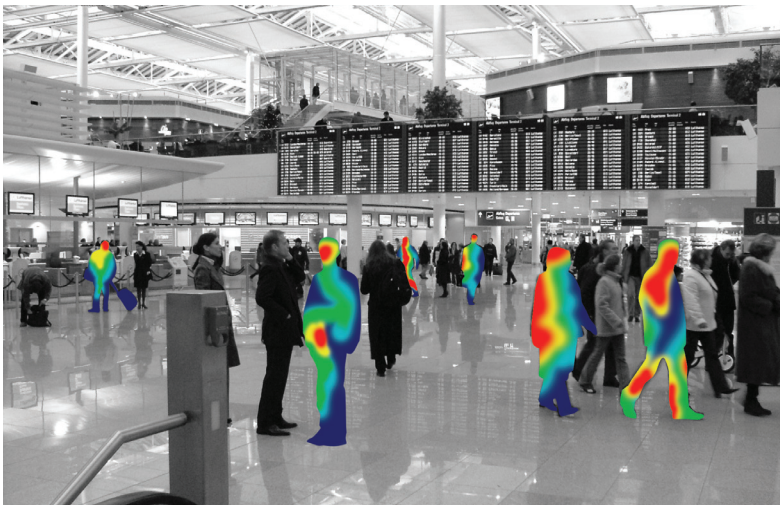
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Our research involves creating innovative methods for remotely sensing the mental and emotional states of human beings. These methods are based on the discovery that the sweat ducts in the human skin constitute an array of small antennas operating in the hundreds of gigahertz frequency range. Anatomic findings show that the capillary which leads the sweat from the sweat gland to the surface of the skin has a spiral structure similar to antennas used for wireless communication systems. Accordingly, it became evident that electromagnetic waves with frequencies of hundreds of gigahertz reflect off of the skin surface based on the activity of the perspiration system.

As a result of this phenomenon, we have been able to demonstrate a way to remotely sense changes in a subject's level of stress, similar to those noted in heart rate and blood pressure. However, here it is done remotely by studying a reflected radio wave in the hundreds of gigahertz range. We have further demonstrated the remote sensing abilities of the examinee's mental and emotional states.

One potential application of this research is to develop a method of remotely sensing malice, helping facilitate identification of terrorists even when they are not carrying weapons. Another is to use this technology to help with medical diagnoses.



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