

# Taking the pulse of the crowd

April 18 2013

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If everyone in the crowd at a sports event or concert or even the players had wireless heart monitors fitted, commentators and those behind the sound desk could get a real measure of the sense of the collective excitement on each side and in the case of sport share the enthusiasm or for a concert adjust the set list to keep up the excitement. The same technology might also perhaps be used to help reduce panic should there be a fire or other scare at such events.

Now, Jari Multisilta University of Helsinki and Arttu Perttula, Pauliina Tuomi, Kristian Kiili, Marko Suominen and Antti Koivisto of Tampere University of Technology, in Pori, Finland, have tested just such a system at an ice hockey match. Writing in the *International Journal of Social and Humanistic Computing*, explain how such metrics might be used to enrich the shared experience of the crowd. Their preliminary tests were with under-clothing heart monitor belts that are fitted around the chest, but they point out that inexpensive and simple motion-sensor monitors, perhaps with GPS capability, would make the whole concept a lot more accessible.

The team explains how during the last decade there has been growing interest in the design of information technologies and interfaces that support rich and complex user experiences, including satisfaction, joy, aesthetics, and reflection. Of course, these have been folded into the whole online social media and [social networking](#) we know as web 2.0, but high on the agenda is that offline technology might be exploited to intensify the overall user experience away from the computer too.

The team has piloted the use of [heart rate](#) monitors hooked up to the mobile phone system to allow collective heart rate to be monitored at an ice hockey match. However, there are numerous other metrics, such as [autonomic nervous system](#) activity, galvanic skin response and blood pulse strength that might also be measured and monitored to give a quantitative estimate of excitement and tension in a crowd. Such data could be fed to those running an event or those commentating on it to help them correlate crowd behaviour on each team's side, such as the intensity of shouting, applause and dancing, for instance, objectively with the collective intensity of the metrics.

Other than hearing the cheers or boos of a crowd, there are only limited means for objectively assessing true engagement and excitement with an event, the team says. Their approach while perhaps seeming cumbersome at first glance could be used to boost audience engagement as well as offering useful data for research into [crowd](#) behaviour at sporting and concert events. Similarly, such a system could be added to video gaming systems to extend interactivity as well as providing useful measurements for health and fitness, dancing and related games.

**More information:** "Enriching shared experience by collective heart rate" in *Int. J. Social and Humanistic Computing*, 2013, 2, 31-50.

Provided by Inderscience

Citation: Taking the pulse of the crowd (2013, April 18) retrieved 25 April 2024 from <https://phys.org/news/2013-04-pulse-crowd.html>

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