

# Mulsemmedia - what's new?

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## ABSTRACT

Imagine a chemistry experiment being streamed online to school kids wearing VR headsets. The chemistry teacher carefully measures the desired quantity of substances, one a yellowish liquid, the other blue, with a pipette and combines them in a glass tube. BOOM! FLASH SMOKE! The kids gasp in amazement – for not only did they see and hear the exothermic (heat emitting) chemical reaction of the experiment in the VR headset, but they also smelt the pungent odor emitted as a result, felt a whiff of hot air blowing through their hair, as well as a slight vibration on their bodies. Fantasy?

Perhaps not, for whilst traditionally, multimedia applications have primarily engaged two of the human senses - the audio and the visual - out of the five possible, with recent advances in computational technology it is now possible to talk of applications that engage the other three senses, as well: tactile, olfaction, and gustatory. This integration leads to a paradigm shift away from the old multimedia towards the new mulsemmedia: multiple sensorial media. In his talk, Prof. Ghinea is going to focus on the issue of the perceptual experience of multimedia and how research in the area has opened new and sometimes challenging opportunities for mulsemmedia applications.

## CCS CONCEPTS

- **Information systems** → **Multimedia information systems**;
- **Human-centered computing** → **Human computer interaction (HCI)**; **Graphical user interfaces**; **User interface design**;

## KEYWORDS

Mulsemmedia, olfaction, haptic, airflow, cross-modality, perception, feeling

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## BIOGRAPHY

Dr. Gheorghita (George) Ghinea is a Professor in Mulsemmedia Computing in the Department of Computer Science, at Brunel University. Dr. Ghinea's research activities lie at the confluence of Computer Science, Media and Psychology. In particular, his work focuses on the area of perceptual multimedia quality and how one builds end-to-end communication systems incorporating user perceptual requirements. To this end, recognising the infotainment duality of multimedia, Dr. Ghinea proposed the Quality of Perception metric as a more complete characterisation of the human side of the multimedia perceptual experience. Dr. Ghinea has applied his expertise in areas such as eye-tracking, telemedicine, multi-modal interaction, and ubiquitous and mobile computing, leading a team of 8 researchers in these areas. He has over 300 publications in his research field and is the lead Brunel investigator of a H2020 project NEWTON (<http://www.newtonproject.eu/>) applying mulsemmedia to STEM learning across Europe.



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