DE MONTFORT UNIVERSITY LEICESTER

YOUR CHALLENGES + OUR EXPERTISE = INNOVATIVE

Interactive and Media Technologies

Solutions that support the creative, educational, digital media, entertainment, gaming and health markets and research

The **Interactive and Media Technologies (IMT)** research group includes academics and research students from various areas, creating a unique research environment where, for example, researchers working in video processing meet and work together with researchers working in haptic and audio interaction, in hearing science, in education, serious games, e-learning, and more. The IMT is currently involved in a number of national and international research projects, producing high quality research and market solutions in the multi-media and interactive technologies field.

Expertise

IMT specialises in the following areas:

- E-learning and E-commerce
- Use and design of avatars
- Multi-modal technologies and applications
- Design and development of testing methodologies and platforms for audio-related perceptual evaluations
- Design and development of interactive 3D VR acoustic systems with haptics feedback
- Design and development of sonification metaphors and platforms for interactive sonification of various typologies of data
- General skills for recording, synthesis and reproduction of 3D audio signals through loudspeakers and headphone systems (in particular using binaural and Ambisonics technologies)
- Development of new methods for interactive environmental sound synthesis and applications, mimicking the behaviour of natural sounds.
- Sound field synthesis: acoustic holography, array beaming, near-field binaural synthesis
- 3D visualisation and stereoscopic capture and display
- Motion tracking
- Augmented reality
- Virtual studio
- Multimedia technologies applied to audiology, audiometry and hearing aids technologies
- Electronic design
- Technological solution for visual and hearing impaired
- Theory and practice of online film
- Social and media tools applied to teaching

Facilities

The principal facility of the IMT is the Fused Media Lab, which features a range of cutting edge equipment for the prototyping, production, and testing of interactive technologies.

- Haptic devices: tactile feedback technology that takes advantage of a user's sense of touch by applying forces,

DE MONTFORT UNIVERSITY LEICESTER

YOUR CHALLENGES + OUR EXPERTISE = INNOVATIVE

vibrations, or motions to the user
- 3D visualisation and stereoscopic capture and display
- Motion tracking
- Augmented reality
- 3D audio recording, synthesis and rendering
- Multimedia technologies and audiology interaction
- Technological solution for visual and hearing impaired

We also have access to the Creative Technology Studios (CTS), boasting a range of industry-standard equipment and facilities for rapid prototyping within the Faculty of Technology. The CTS includes HD workstations, television studios with HD equipment, green screen and virtual-studio capabilities, two fully equipped recording studios featuring analogue and digital recording systems; surround sound monitoring and a fused media and motion-capture studio, used for 3D image capture, modelling and display.

Research Projects

The IMT is involved in various national and international research projects:
- BlindSpot: fostering creativity in design and engineering education using multi-modal interactive frameworks and platforms
- VR interactive environments for the blind
- Multimedia and Audiology Network
- Phya: a unique framework and synthesis toolkit for adding physically modelled sound generation into virtual environments
- O-Bow: a bow controller consisting of an optical movement sensor mounted to measure the bow speed and horizontal angle with high resolution
- Audio and haptic interaction design
- The Sound of Proteins
- Investigating student's attitudes towards pedagogical and ethical factors in assessment
- Timescope: a vintage telescope adapted for visually overlaying graphics on sites or objects of historical interest.
- Historical city trail for Leicester City Council
- Archaeological mapping system for University of Leicester Archaeological Services.

Key Collaborations

- University of Nottingham (UK)
- LIMSI-CNRS (France)
- IRCAM (France)
- University of Ferrara (Italy)
- Università degli Studi di Milano (Italy)
- GNReSound Italia (Italy)
- Centre for New Music and Audio Technologies (CNMAT), UC Berkeley (USA)
- University of Twente (Netherlands)
- IEM Graz (Austria)
- GIST (Glasgow)

Contact details

Professor Dimitrios Rigas
Interactive and Media Technologies
De Montfort University
Gateway House
The Gateway
Leicester LE1 9BH, UK
E: imt@dmu.ac.uk
W: www.dmu.ac.uk/IMT

ADD DMU. PROFIT FROM OUR EXPERTISE