

The Imaging and Displays Research Group

Leading the way forward in 3D display

The **Imaging and Displays Research Group (IDRG)** conducts research into 3D displays. The group has earned an international reputation for excellence in the design, development and evaluation of next generation three-dimensional displays for consumer and industrial use. The team's world-first projects regularly involve collaboration with partners worldwide, opening up new possibilities for innovative displays and greater interaction. Key areas of research include:

- 3D display systems
- Autostereoscopic displays
- Virtual reality
- Telepresence and interaction with 3D displays
- Viewer tracking/eye tracking

Mission

To establish De Montfort University as an International Centre of Excellence in 3D display research.

Background

The IDRG is concerned primarily with advanced stereoscopic and autostereoscopic display systems. This involves the design, development, application and characterisation of such displays as well as investigation of their associated human factors. This work encompasses a wide variety of application domains including computer graphics, virtual reality and telepresence, although the current focus is multiple viewer head-tracked 3D-TV systems. Historically the group has always enjoyed wide and diverse support both at home and abroad.





Expertise

IDRG are specialists in the areas of

- Optoelectronics
- Optics
- Electronics
- Display systems (particularly stereoscopic and 3D displays) and associated human factors

Key Collaborations

Academic

- TU Eindhoven (Netherlands)
- KU Leuven (Belgium)
- KoC University (Turkey)
- University College, London
- Nanjing University (China)

Industrial

- Philips Consumer Electronics
- Sharp Laboratories of Europe
- Biotronics 3D
- Light Blue Optics
- Fraunhofer HHI
- Microsharp
- Barco

Research Grants and Projects

- **HELIUM3D (High Efficiency Laser-Based Multi-User Multi-Modal 3D Display)** the project is led by DMU, has a total value of €4,215,000 and is supported by funding from the European Commission's Framework 7 programme. We are developing a revolutionary interactive 3DTV system which could change the way television is watched and computer games are played.

- **MUTED (Multi-User 3D Television Display)** was funded by the European 6th Framework with a total cost of €4,450,000 and 30 person-years of effort. The project was led by DMU with project participants Sharp Laboratories of Europe, Heinrich Hertz Institute, Technical University of Eindhoven, University of West Bohemia and Light Blue Optics.
- **3DTV 'Network of Excellence'** funded by the European 6th Framework whose aim was to integrate the foremost expertise from across Europe in the subject area. The project had 20 partners and a total budget of over €6 million over the duration of four years.
- **COGAIN (Communication by Gaze Interaction)** 'Network of Excellence' project funded by the European 6th Framework with a total value of €3 million and involving 27 partners from across Europe. The network aims to gather Europe's leading expertise in eye tracking integration with computers to develop new technologies and systems, improve existing gaze-based interaction techniques.
- **ATTEST (Advanced Three-dimensional Television System Technologies)** project funded by the European 5th Framework with a total value of €6 million and involving seven partners from across Europe. The objective of the project was to develop an entire 3DTV broadcast chain.

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