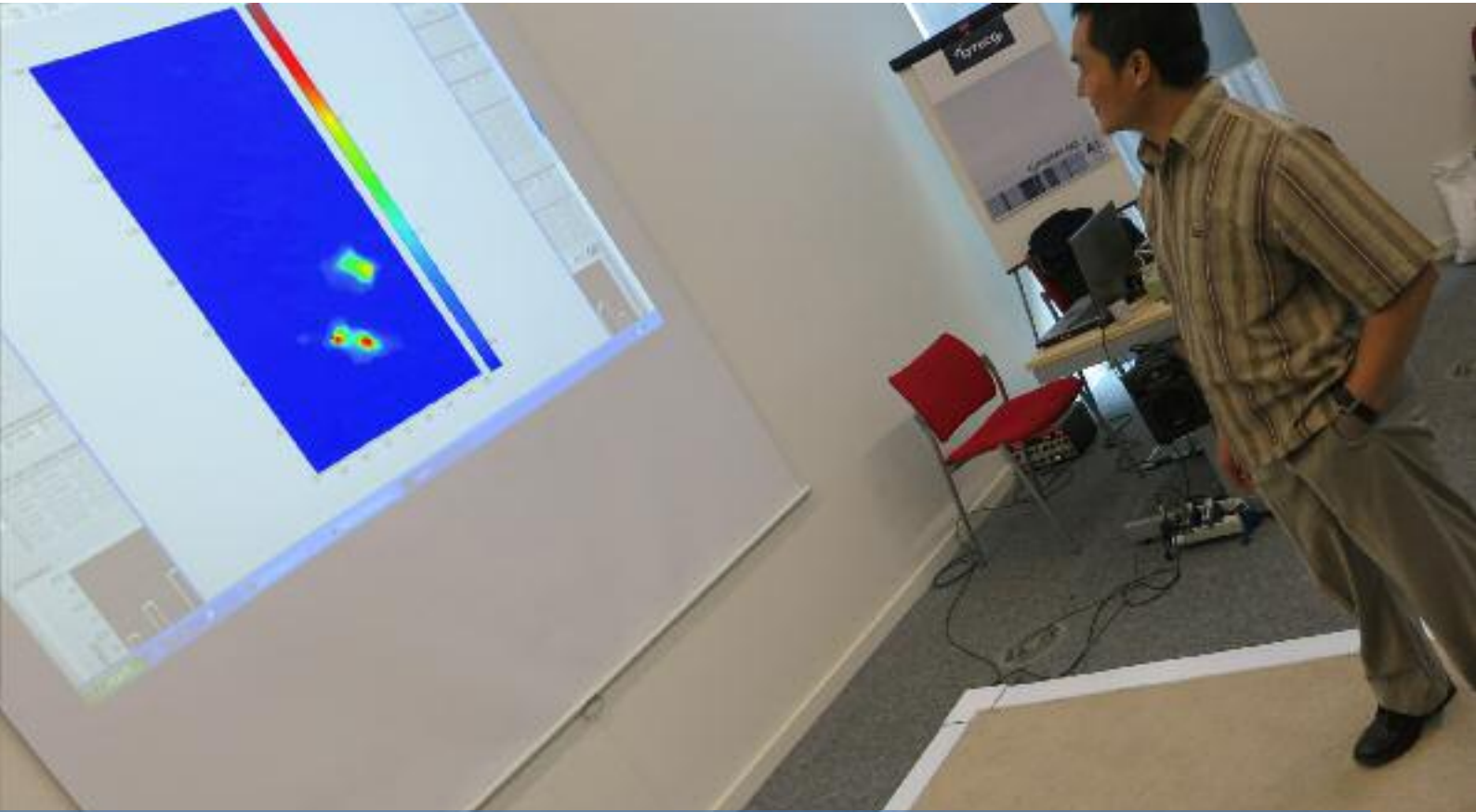


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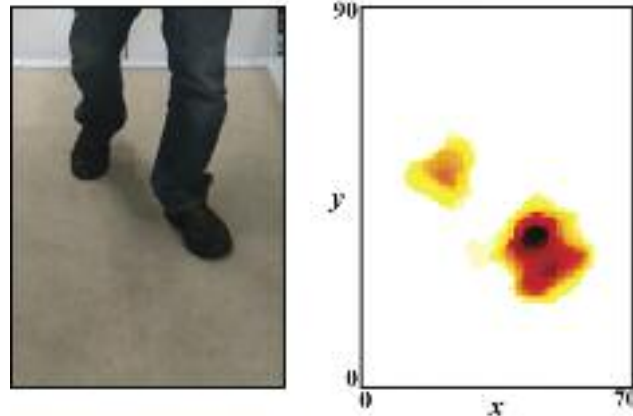
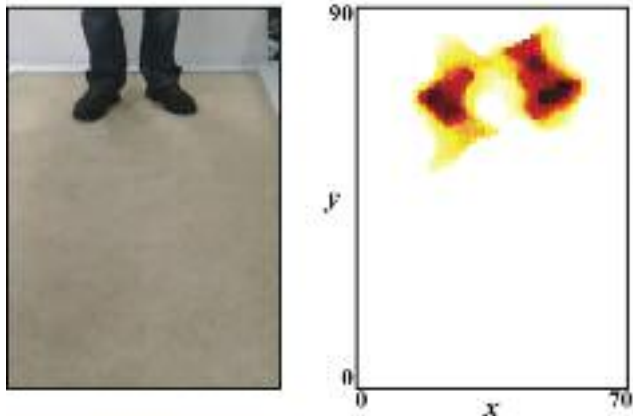
A BREAKTHROUGH IN BIOMETRICS

Smart carpets for care homes
and hospital wards

Optical fibres laid under the carpet
alert healthcare professionals to a wide
range of information on a person's
condition and walking patterns

Developed by The University
of Manchester, England

- > Fully working prototype and technical document available
- > Positive evaluation by clinical partners
- > The University of Manchester now seeks a commercial partner to collaborate on product development



THE PROTOTYPE

- > Plastic optical fibres, laid on the underlay of a carpet, can bend when anyone treads on it and map in real-time their walking patterns
- > Maps 2D images by using light propagating under the surface of the smart carpet
- > Compact electronics at the edges measures and relays sensor signals to a computer
- > These signals can then be analysed to show the image of the footprint and identify gradual changes in walking behaviour or a sudden incident such as a fall or trip

DESIGN

- > Dimensions 1.00 x 2.00 m active area
- > Materials used: commercial carpet and underlay, fibre-optic sensing layer
- > Hardware / software
 - Portable external equipment - 240V power supply, palm-size data acquisition blocks from National Instruments (NI), laptop running NI LabView
 - Dedicated imaging software, integrating NI Labview

TECHNOLOGY BENEFITS

- > New sensor system strategy based on tomography, allowing lower cost, easier deployment, maintenance and management of the sensor system
- > Alerting health care professionals in advance of an adverse event such as a fall or the acute onset of illness enabling remedial action
- > The carpet can be retrofitted at low cost
- > Gather a wide range of information about a person's condition; from biomechanical to chemical sensing of body fluids

CURRENT STATUS

- > Fully working prototype ready for demonstration. Further prototypes targeting specific applications are possible.
- > Clinical partners have positively evaluated the technology for application in areas such as Falls assessment; Community care and Assisted Living.
- > Technical design/engineering document available

POTENTIAL APPLICATIONS

- > Smart carpets in care homes or hospital wards
- > Physiotherapists analysis tool for monitoring a person's gait
- > An early-warning system to detect the presence of chemical spillages or fire

OPPORTUNITY

- > The University seeks a commercial partner for product development collaboration

CONTACT

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