

## **New automatic sign language translator with groundbreaking potential developed**

A new intelligent system could be set to transform the lives of deaf and hearing impaired people. International research published in the Institution of Engineering and Technology's *The Journal of Engineering* highlights an Automatic Sign Language Translator (ASLT) which uses advanced technology to capture, interpret and translate sign language into "readable language". With the potential for use in multiple languages and economical enough for mass production and for use on mobile devices, this (early stage) research could be set to help change the lives of deaf people worldwide.

Everyday communication is a major challenge to a great many hearing-impaired people, as well as those unable to speak, all around the world. Until now, systems devised to remove these barriers to communication have had limited capabilities in terms of target languages or ease of use.

Researchers from Malaysia and New Zealand have developed theoretical fundamentals of sign language interpretation based on image processing and pattern recognition, which they believe will result in a portable, efficient and affordable ASLT for a wide variety of sign and written languages.

The system was tested on gestures and signs representing both isolated words and continuous sentences of Malaysian sign language, with a high degree of recognition accuracy and speed.

"At the heart of the ASLT are real-time image processing and computational intelligence methods," said researcher Professor Rini Akmeliawati, of Malaysia's IIUM University. "We developed a novel approach, leading to efficient detection and tracking of face, hands and upper body trajectories of a signer. By combining it with our tools for artificial intelligence-based matching between these sign trajectories and elements of a large database of images and video recordings of *native* signers, we have achieved a fast and flexible automatic sign language translation system. The system's potential lies in its technologically advanced algorithms and structure, which can be adapted to a multitude of the world's sign languages."

### **About the authors**

Professor Rini Akmeliawati is Chair of Mechatronics at the Faculty (Kulliyah) of Engineering at the International Islamic University of Malaysia (IIUM). Among her partners were researchers from Massey University's School of Engineering & Advanced Technology, New Zealand; Vietnam's RMIT University; IIUM's Mechatronics Engineering Department, and Monash University Malaysia's School of Engineering.

### **About *The Journal of Engineering***

[www.thejournalofengineering.org](http://www.thejournalofengineering.org)

Launched by the IET in April 2013, *The Journal of Engineering* (JoE) is a broad, online-only, open access journal, making essential engineering intelligence freely available to the worldwide engineering community online. JoE publishes scientifically sound research with rigorous peer-review and fast turnaround in emerging or cross-disciplinary areas including Electrical and Electronic engineering, Mechanical engineering, Energy engineering, Civil engineering, Micro- and Nanotechnology, Computing and Software, Biomedical engineering and Materials engineering.

### **About the IET**

[www.theiet.org](http://www.theiet.org)

The IET is working to engineer a better world. It is one of the world's largest organisations for engineers and technicians with nearly 160,000 members in 127 countries around the world. The IET's mission is to inspire, inform and influence the global engineering community, supporting technology innovation to meet the needs of society. The IET is the Professional Home for Life® for engineers and technicians, and a trusted source of engineering intelligence and thought leadership.

The IET *Inspec* database contains over 14 million abstract and indexing references to journal articles, conference proceedings and technical reports in the fields of science and technology, and IET.tv provides access to the world's largest specialised online archive of engineering and technology content.

The IET's portfolio of research and letters journals and monographs (print and e-Book) are available online through the IET Digital Library together with conference proceedings, seminar digests and magazines.

### **Media enquiries to:**

Jenny Drey  
07812 164632  
[j.drey@sky.com](mailto:j.drey@sky.com)

Robert Beahan, External Communications Manager

T: +44 (0)1438 767336  
M: +44 (0)7595 400912  
E: [rbeahan@theiet.org](mailto:rbeahan@theiet.org)