
Editorial

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Biographical notes: Jeonghwan Gwak received his PhD in Artificial Intelligence and Machine Learning from the Gwangju Institute of Science and Technology (GIST), Gwangju, Korea in 2014. From 2002 to 2007, he had worked for several companies and research institutes as a Researcher and Chief Technician. He worked as a Postdoctoral Researcher in GIST from 2014 to 2016 and Research Professor from 2016 to 2017. He is currently a Research Professor in Biomedical Research Institute and Department of Radiology at Seoul National University Hospital, Seoul, Korea, and he is the Director of Applied Medical Machine Learning (AMML) Laboratory. His current research interests include deep learning, computer vision, image and video processing, evolutionary computation, optimisation, and relevant applications of medical and visual surveillance systems.

Sang-Woong Lee received his BS in Electronics and Computer Engineering from the Korea University, Seoul, Korea, in 1996, MS and PhD in Computer Science and Engineering from the Korea University, Seoul, Korea in 2001 and 2006, respectively. From 2006 to 2007, he was a Visiting Scholar in Robotics Institute, Carnegie Mellon University. From 2007 to 2017, he worked as a Professor in Department of Computer Engineering from the Chosun University, Gwangju, Korea. He is currently an Associate Professor in Department of Software from the Gachon University. His present research interests include face recognition, computational aesthetics, machine learning, bioinformatics, and medical imaging analysis.

Due to the recent progress in intelligent algorithms, sensing and processing devices, visual intelligence is getting more attention and plays essential roles in many application fields such as visual surveillance, intelligent transportation systems, healthcare, virtual/augmented reality, robotics, autonomous systems, and so forth. In addition, capability of processing large amount of data in recent years has given rise to a large variety of interesting applications and created challenging research and development issues. A crucial new requirement of visual intelligence in the era of big data is to

develop effective and efficient methods and analytics solutions for the applications by utilising the big data. This special issue especially aims to disseminate practical examples of ways in which visual intelligence is applied.

The article entitled 'Calibration and using a laser profile scanner for 3D robotic welding' describes some functions of the developed cognitive module consisting of calibration of a laser profile sensor and online 3D model construction of an object for robotic welding, whose main aim is to automate and increase the efficiency of the process for folding of the weld beads on the complicated unknown surface of the object with specific requirements

In the paper entitled 'Content-based image retrieval using multiresolution speeded-up robust feature' proposes the concept of multiresolution speeded-up robust feature (SURF) descriptor which combines discrete wavelet transform and SURF descriptor to extract interest points at multiple resolutions of image for content-based image retrieval. The experimental results demonstrated that it could outperform other state-of-the-art methods in terms of precision and recall.

'An image encryption algorithm using logarithmic function and Henon-chaotic function' proposes a natural logarithmic and chaotic-based encryption algorithm for securing images to enhance the diffusion and confusion capabilities. The logarithmic function reduces the intensity of the pixels and then the image fusion function with the random image is used for creating diffusion. A Henon chaotic function is adopted to shuffle the pixel values, which creates the confusion. The experimental results showed that image fusion with the random image as key increases the resistance against differential attacks.

The paper entitled 'Support vector machine-based approach for text description from the video' introduces natural language descriptions (i.e., of long videos to sentences generate sentences from objects and their activities using support vector machine classification.

In the paper entitled 'Detection of defective printed circuit boards using image processing', the proposed approach is to detect defects in printed circuit board using effective image processing comprises of four steps.

The article entitled 'Improved eigenspectrum regularisation for human activity recognition' deals with a new four-parameter regularisation method which enables the extraction of highly discriminative features and that the regularisation process was achieved in one piece. The results have been shown that the proposed approach has better discriminative capacity than several other subspace approaches

These six selected contributions basically can reflect the achievements in visual intelligence applications, and we wish they can provide a solid foundation for future new approaches and applications.

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