Editorial

Ford Lumban Gaol

Research Interest Group in Advanced Intelligent System Leader,
Graduate Program in Computer Science,
Universitas Bina Nusantara,
Jl. Kebon Jeruk No 27, Jakarta, Indonesia
Email: fgaol@binus.edu

Biographical notes: Ford Lumban Gaol received BSc in Mathematics, Master of Computer Science and the Doctorate in Computer Science from the University of Indonesia, Indonesia in 1997, 2001 and 2009, respectively. He is currently an Associate Professor of Informatics Engineering and Information System, Bina Nusantara University, www.binus.ac.id. He is the Chair of PhD Program and Research Interest Group Leader, Advance System in Computational Intelligence and Knowledge Engineering (IntelSys), Bina Nusantara University. He is the Vice Chair of IEEE Indonesia Section for International and Professional Activities. He is the Chair SERSC: Science and Engineering Research, Support Society Indonesia section. He is involved with some projects related to technology alignment in some multinational companies, such as Astra, United Tractors, Telkom and Sony Erickson. He is the recipient of IEEE Visiting Professor to Hong Kong University in 2011.

Applied computing plays an important role in society, business and industry. It has attracted much attention from many researchers lately.

The most important aspect of applied computing is context awareness. By recognising the conditions of their surroundings including the humans present there, computer systems can optimise operations and offer better services.

For this reason, ubiquitous computing has attracted a lot of attention because it can affect many people.

The paper "Sound absorption properties of a low-density perforated date palm fibres panel" presents sound absorption properties of a natural waste of a low-density date palm fibre perforated panel. The quality of this implementation is assessed by means of several experiments for measuring the time needed for the retrieval and notification of documents. The experiment was conducted for the panel with and without perforated plate facing. Three air gap thicknesses of 10, 20 and 30 mm were used between the date palm fibre sample and the rigid backing of the impedance tube to study the effect of the air gap on the panel sound absorption. The results showed an improvement on the sound absorption coefficient at higher and lower frequency ranges when facing the palm date fibre sample with the perforated plate.

The paper "The effects of using learning-aided cues in an augmented reality environment for a multi-body mechanism" provides an in-depth discussion on the effects of using learning-aided cues in an augmented reality (AR) environment for a multi-body mechanism, whereby the results indicated positive acceptance by the students as a new technology in their learning. AR is a new potential area of research for education, covering issues such as tracking and calibration, and realistic rendering of virtual objects. The ability to augment the real world with virtual information has opened the possibility of using AR technology in areas such as education and training as well. In the domain of computer-aided learning (CAL), researchers have long been looking into enhancing the effectiveness of the teaching and learning process by providing cues that could assist learners to better comprehend the materials presented. Although a number of works were done looking into the effectiveness of learning-aided cues, none has really addressed this issue for AR-based learning solutions.

The paper "A simplified model of a reinforced square hollow section T-joint for stress evaluation in bus superstructures" reports a simplified model of a reinforced square hollow section (SHS) T-joint found in bus superstructures. The approach is to use a combination of one- and two-dimensional finite-element models to represent a reference three-dimensional finite element (solid) model of the joint and determine stress concentration factors (SCFs) as functions of the geometrical variables of the joint. This approach requires the stiffness of the simplified model to be equivalent to the stiffness of the reference solid model. The stiffness error function was, therefore, defined as an index that represents the deviation of the simplified model's stiffness from the reference model's stiffness. Four types of trial models, namely Model A, Model B, Model C and Model D were then investigated at various values of SHS beam width and SHS beam thickness, forming a three-factor design of experiment (DOE). The stiffness errors were computed for the experiment. Analysis of variance (ANOVA) was then applied to evaluate the significant difference of the stiffness errors due to the effect of each factor. The results showed with 95% confidence level that model type, as well as SHS beam width and SHS beam thickness, had a significant effect on the stiffness error. In addition, when each pair of

model types were used in the analysis, it was found that the stiffness errors from Model A were significantly different from those from Model B, Model C and Model D. However, the stiffness errors from Model B, Model C and Model D were not significantly different. To complete the study, Model B was selected as a simplified model since it provided the minimum average stiffness error.

The paper "HTML table wrapper based on table components" presents an approach to prepare the table area and to wrap or extract table component in cell and property from HTML table. This paper was tested on Algorithm 1 used to determine the actual number of columns and rows of the table, as well as Algorithm 2 used to determine the boundary line of the property. At the end process, Algorithm 3 was implemented to get content of table. Tests were conducted at 100 tabular HTML format. The F-measure for Algorithm 1 is 100.00%, for Algorithm 2 is 97.67% and for Algorithm 3 is 94.91%.

The paper "Effect of reflow soldering profile on intermetallic compound formation" discusses and explores the effect of different reflow soldering atmospheres, either air or nitrogen, on IMC formation and growth. Several techniques of materials characterisation including optical, image analysis, scanning electron microscopy and energy dispersive X-ray analysis were used to characterise the intermetallics formed in terms of composition, thickness and morphology. In addition, the effects of cooling rate and isothermal ageing were also studied for the solder alloy Sn–4Ag–0.5Cu on electroless nickel/immersion gold (ENIG)

surface finish. From the study, it was found that reflowing under nitrogen atmosphere had better effect on IMC formation and growth compared to reflowing under air. Besides, the cooling rate of solder during reflow also appears to have a significant effect on the final structure of the solder joint, and controlling the growth behaviour of the IMC during subsequent isothermal ageing.

The paper "Application of robotics in medical fields: rehabilitation and surgery" provides an in-depth discussion about the use of robotics in medical applications, presenting ongoing research in macro-robotics, micro-robotics and bio-robotics which are the three major areas of robotics currently experiencing significant improvement in medical fields. For many years, robotics have been of interest to people to assist in going about their daily work and life. However, research has been carried out in robotics applications in various fields ranging from medical, transport, underwater, entertainment and military to mention a few. Moreover, the growth of interest in medical robotics has been extremely rapid recently.

We wish to thank all the authors for their great work and for considering the *International Journal of Computer Applications in Technology* for submitting their papers. Special thanks go to all reviewers who had helped with the reviews of the papers and to Professor Quan Min Zhu for his excellent support and advice.

We hope that this special issue will represent a significant source of reference for future researches in the applied computing area.