

SUS: Machine Understanding and Human Understanding

The IEEE Computer Society of the IEEE Victorian Section & IEEE Student Branch of The University of Melbourne present:

When: 10 September 2015 from 5:45 pm refreshments start or 6:00 pm to 7:30 pm.

Where: Greenwood Theatre (EEE), Building 193, University of Melbourne (http://maps.unimelb.edu.au/parkville/building/193/greenwood_theatre)

Talk Abstract: This talk is based on the authors latest book Shape Understanding System: Machine Understanding and Human Understanding (Springer-Verlag 2015). This is the third book that presents the selected results of research on the further development of the shape understanding system (SUS) carried out by authors in the newly founded the Queen Jadwiga Research Institute of Understanding. In this book the new term machine understanding is introduced by authors to denote understanding by the machine (SUS) and machine understanding is referring to the new area of research the aim of which is investigating the possibility of building machine with the ability to understand. In this talk short description of the shape understanding method and the shape understanding system (SUS) will be given. Machine understanding is aimed at understanding of objects from many different categories of objects such as the category of visual objects, the category of sensory objects and the category of text objects. In this talk basic terms of the proposed method will be briefly described and understanding of the different categories of objects will be presented. The shape categories and categories of the visual objects will be briefly described in the context of the visual thinking and visual understanding process. The shape categories which are basic elements of the visual concept play a big role in visual problem solving and naming process. Understanding will be discussed in the context of philosophical and psychological investigations. The existing systems in the area of AI and robotics, that could be called "understanding systems", will be also briefly described. SUS, to some extent, mimics human understanding and for this reason it can be evaluated according to the rules applied for evaluation human understanding. The most important part of SUS evaluation is formulating problems and testing if the machine is able to solve these problems. However, when the ability to solve problems can to some extent prove that the machine has the ability to understand, the very important part of proving this is testing if the machine is able to explain how to solve these problems. The application of the results of research in machine understanding in designing the new generation of understanding machines (robots) will be also presented.



Speaker: Prof. Zbigniew Les, Ph.D. - has graduated from AGH (M.Sc. and Ph.D.), Cracow, Poland and The University of Melbourne (M.Sc.). During his scientific carrier in Poland and next in Australia, he conducted research in the area of mathematical modelling, pattern recognition, image processing and the development of the intelligent system for object recognition. He was involved in research on aesthetic evaluation of the pictures, pioneering application of the image understanding approach to aesthetic evaluation. Working as a senior software engineer at Melbourne University he was also involved in designing and implementation of the scientific software. He continues his research in the development of the understanding system (the System of Shape Understanding) which is the first attempt to build the system with visual thinking capabilities. He is an author of more than 60 scientific papers and three scientific books. He is a member of IEEE. For his scientific achievements Prof. Les was included in 'Who is Who' in the years 2003, 2004 and 2006. He is a director of the Queen Jadwiga Foundation, a director of the Queen Jadwiga Research Institute of Understanding and an editor of Journal of Understanding.

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