

EDITORIAL

Special Issue on CAD and Big Data

Big data is an emerging paradigm applied to datasets whose size is beyond the ability of commonly used software tools to capture, manage, and process the data within a tolerable elapsed time. Such datasets are often from various sources yet unstructured such as social media, sensors, scientific applications, surveillance, video and image archives, Internet texts and documents, Internet search indexing, medical records, business transactions and web logs; and are of large size with fast data movement in and out. More importantly, big data has to be of high value and establish trust in it for business decision making. Various technologies are being discussed to support the handling of big data such as massively parallel processing databases, scalable storage systems, cloud computing platforms, and MapReduce. Big data is more than simply a matter of size; it is an opportunity to find insights in new and emerging types of data and content, to make business more agile, and to answer questions that were previously considered beyond our reach. This special issue wants to demonstrate the emerging issues in the research of Big Data and approaches towards it. Original and research articles are solicited in all aspects including theoretical studies, practical applications, and experimental prototypes.

The submitted manuscripts were reviewed by experts from both academia and industry. After reviewing, the highest quality manuscripts were accepted for this special issue. In total, we have received 12 manuscripts and 6 papers were accepted. The acceptance rate is about 50%, and this special issue will be published by Computer-Aided Design and Applications. These papers are from authors from China, Taiwan, and the Netherlands.

Wang studies how to efficiently remove the ice and snow on the roads in the ice or snow disaster, designs and develops a new centrifugal icebreaking and snow clearing system suitable for China's national conditions. Zhang et al. present a parallel mechanism for photo-realistic fluid animation on cluster system. Their method can animate liquid with rich details and high efficiency. To solve the machining operation sequencing problem

in the computer aided process planning, Huang et al. present a hybrid genetic algorithm and simulated annealing approach for machining operation sequencing optimization in a dynamic workshop environment. Qi and Martens developed guidelines for choosing display environment for four specific, but common, data analysis tasks: identification and judgment of the size, shape, density, and connectivity of objects in a volume. Liang presents in this paper an interactive and intuitive method to add expressiveness to avatars by the exaggeration of the characters and their motions. Weng developed a 3D orchid design program using 3ds MAX technology, which allows students to construct the appearance of an orchid.

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