IMAGE PROCESSING AND VISUALIZATION

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ABSTRACT

Image processing and visualization are among the most dynamic and innovative research areas of the last decades. The justification of this high interest is due to the demands of various relevant applications, such as scientific data processing and visualization, computational processing of medical images for diagnosis and clinical intervention assistance, 3D reconstruction, and motion and deformation tracking in biomechanical studies.

Currently, due to the development of computational resources and mathematical and physical modeling methods increasingly more powerful, the researchers are integrating more advanced computational techniques in the development of new methodologies to improve the solutions for the problems tackle. Consistent with these efforts, several effective algorithms have been proposed, validated, and some of them were already integrated into commercial software.

The main objective of this session is to establish a communication forum between experts from several complementary areas, such as engineering, mathematics, physics, computer science, computer graphics, medicine, psychology and industry. Participants of this session will present and discuss their methods and explore the potential benefits of this transnational technological field. Hence, this session will be an excellent opportunity to refine ideas for future work and to establish constructive cooperation, particularly among software developers, researchers, specialists and end-users of the various areas involved.

Topics of interest for this session are (non-exhaustive list): Image analysis; Enhancement, compression, segmentation and description of images; Tracking, matching, registration, recognition and reconstruction; Visual inspection; 3D Vision; Medical image; Processing, modeling and data analysis; Scientific visualization; Enhanced visualization; Human machine interaction; Virtual and augmented reality; Simulation and animation; Development of software for image processing and data visualization; Grid and high-performance computing for image processing and data visualization; Applications of image processing and data visualization.