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Conference on graphics, patterns and images

SIBGRAPI – Conference on Graphics, Patterns and Images is an international conference annually promoted by the Brazilian Computer Society (SBC). SIBGRAPI is one of the most traditional and important Brazilian scientific events in Computer Science. It is attended by researchers, artists, designers, and students from Colleges, Universities, Companies and Research Centers, gathering around 200 participants from different regions of Brazil and abroad. SIBGRAPI is the main conference of the Special Committee of Computer Graphics and Image Processing of SBC (Brazilian Computer Society) and held in cooperation with ACM SIGGRAPH.

The proceedings of the event have been published since 1997, and all the editions are available from IEEE Xplore Digital Library. In addition, SIBGRAPI 2020 has Special Sections of the Elsevier Computers & Graphics, IEEE Geoscience and Remote Sensing Letters and Pattern Recognition Letters journals. This text introduces the Pattern Recognition Letters SIBGRAPI 2020 Special Section.

SIBGRAPI 2020 program included 43 papers that have been accepted and presented during the conference. From these, the 3 best papers on Pattern Recognition and related fields have been selected and invited for the submission of an extended version. Two papers have been extended, submitted and undergone the standard PRL peer-reviewing process. These two have been accepted to compose the Special Section.

"The impact of domain randomization on cross-device monocular deep 6DoF detection", by K. Cunha *et al.* [1], assesses the use of synthetic data to train deep 6DoF pose estimation models. The paper introduces two datasets composed of 110,000 annotated frames of synthetic and real texture-less 3D printed objects data. Domain generalization for different camera sensor types are evaluated using state-of-the-art deep nets detector models.

The second paper, "A Robust Handwritten Recognition System for Learning on Different Data Restriction Scenarios", by Byron Bezerra *et al.* [2], introduces the Gated-CNN-BGRU optical model for Handwritten Text Recognition (HTR). The application of deep learning methods to different handwritten recognition tasks presents some challenges due to the high computational costs and restriction of training data. The proposed approach aims at achieving stability and precision for small sample size while keeping a low number of trainable parameters. In order to achieve these goals, a previous approach has been extended through an optical model for HTR systems based on Gated Convolutional Recurrent Neural Network. Furthermore, some layers and parameters have been simplified. The experimental results have shown a significant improvement in terms of the state-of-the-art optical models.

We are very grateful to Prof. Maria De Marsico and all of the PRL staff for the support to the publication of this special section. We would like to thank the authors for their submissions, and the reviewers who helped us with the revision of the manuscripts. We would also like to thank the SIBGRAPI organization. For further information about SIBGRAPI, please visit the official website: https://sibgrapi2020.cin.ufpe.br.

The SIBGRAPI 2020 guest editors,

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References

[1] Kelvin B. da Cunha, Caio Brito, Luca Valença, Lucas Figueiredo, Francisco Simões, Veronica Teichrieb. The impact of domain randomization on cross-device monocular deep 6DoF detection. In this issue

[2] Arthur Flor de Sousa Neto, Byron Leite Dantas Bezerra, Alejandro Héctor Toselli, Estanislau Baptista Lima. A robust handwritten recognition system for learning on different data restriction scenarios. In this issue.

Abbreviations: SIBGRAPI, Conference on Graphics, Patterns and Images.

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