

Foreword and Editorial

International Journal of Multimedia and Ubiquitous Engineering

We are very happy to publish this issue of the International Journal of Multimedia and Ubiquitous Engineering by Global Vision Press.

This issue contains 4 articles. Achieving such a high quality of papers would have been impossible without the huge work that was undertaken by the Editorial Board members and External Reviewers. We take this opportunity to thank them for their great support and cooperation.

In the research paper “FPGA Based Digital Implementation of Adaptive Synchronization Methodology for 6-D Chaotic System”, they proposed the FPGA based digital implementation of synchronization methodology for 6-D chaotic systems via nonlinear feedback adaptive control technique. They derived new results for the adaptive controllers and the parameter update laws based on Lyapunov stability theory to achieve the synchronization between identical 6-D chaotic systems. Since the digitization of chaotic synchronization is necessary for digital communication, the proposed adaptive synchronization methodology is implemented in digital circuits based on Field Programmable Gate Array chip. The digital chaotic signal also generated using MATLAB simulink and Xilinx System Generator technology. The numerical simulation and FPGA outputs are used to prove the robustness and effectiveness of our proposed methodology.

In order to solve the problem of recommendation of points of interest, the paper “Research on Point of Interest Recommendation Algorithm Based on Spatial Clustering” proposes an algorithm of recommendation of points of interest based on user check-in space clustering. According to the administrative region information of interest points in LBSN and the distribution characteristics of user check-in, a new spatial clustering algorithm is designed in this paper. First, according to the distribution of user check-ins, the whole data set was clustered in cities, and the user rating information was normalized. Then the recommendation scores of candidate recommendation points were calculated according to the user preference model, social relation model and geographical correlation model. The final recommendation list is obtained by calculating the recommendation probability of the points of interest. Experiments on the Yelp data set show that the proposed algorithm has higher precision and recall rate than the traditional algorithm.

The paper “Map-Reduce based Frequent Sub-Graph Extraction” explored that frequent subgraph extraction from a substantial number of small graphs is a crude activity for some, information mining applications. To extricate frequent subgraphs, existing systems need to identify countless which is super straight with the cardinality of the dataset. Given the huge developing volume of graph information, it is hard to play out the regular subgraph extraction on a unified machine proficiently. Along these lines, there is a need to explore how to effectively play out this extraction over expansive datasets utilizing MapReduce. Parallelizing existing strategies straightforwardly utilizing MapReduce does not yield great execution as it is hard to adjust the remaining task at hand among the figure hubs. This structure receives the MRFSE procedure to iteratively remove Frequent subgraphs, i.e., all incessant size-(i+1) subgraphs are created dependent on continuous size-I subgraphs at the ith emphasis utilizing a solitary MapReduce work. To productively separate successive subgraphs, arrangement and

mining stage are utilized which incorporates isomorphism testing to wipe out copy designs. Frequent subgraphs extraction should be possible productively and effectively by utilizing a disseminated domain named Hadoop MapReduce structure.

In the paper “EOLO: Deep Machine Learning Algorithm for Embedded Object Segmentation that Only Looks Once”, authors introduce an anchor-free and single-shot instance segmentation method, which is conceptually simple with 3 independent branches, fully convolutional and can be used by easily embedding it into mobile and embedded devices. Our method, refer as EOLO, reformulates the instance segmentation problem as predicting semantic segmentation and distinguishing overlapping objects problem, through instance center classification and 4D distance regression on each pixel. Moreover, they propose one effective loss function to deal with sampling high-quality center of gravity examples and optimization for 4D distance regression, which can significantly improve the mAP performance. Without any bells and whistles, EOLO achieves 27.7% in mask mAP under IoU50 and reaches 30 FPS on 1080Ti GPU, with single-model and single-scale training/testing on the challenging COCO2017 dataset. For the first time, they show the different comprehension of instance segmentation in recent methods, in terms of both up-bottoms, down-ups, and direct-predict paradigms. Then they illustrate our model and present related experiments and results. They hope that the proposed EOLO framework can serve as a fundamental baseline for a single-shot instance segmentation task in Real-time Industrial Scenarios.

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**Editor(s)-in-Chief of the May Issue on
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