



Special Issue Editorial: Big Data for Mobile Services

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1 Editorial

We are in era of “Big Data”. As data and knowledge volume keep increasing while global means for information dissemination continue to diversify, new methods, modeling paradigms and structures are needed to efficiently mount scalability requirements [1]. In the last few years, we have seen the proliferation of the use of heterogeneous distributed systems, ranging from simple Networks of Workstations, to highly complex grid computing environments. Such computational paradigms have been preferred due to their reduced costs and inherent scalability, which pose many challenges to scalable systems and applications in terms of information access, storage and retrieval. Cluster computing [2], cloud computing technology [3], data and knowledge bases, distributed information retrieval technology [4] and networking technology [5] should all converge to address the scalability concern. Furthermore, with the advent of emerging computing architectures (e.g., SMTs, GPUs, and multicores), the importance of designing techniques explicitly targeting these systems is becoming more and more important.

The 8th EAI International Conference on Big Data Technologies and Applications (BDTA) has mainly focused on a wide array of scalability issues and investigated new approaches to tackle problems arising from the ever-growing size and complexity of information of all kinds.

This special issue features six selected papers with high quality from BDTA held in Gwangju, Korea, November 23–24, 2017. The first paper, entitled “Fine-grained Big Traffic Data Reverse-charge System: a Method of Saving Expenses”, presents an interesting framework to process big traffic data. Particularly, by analyzing the data streams from mobile applications, they have experimentally employed the proposed reverse charge system, and participants’ responses to

questionnaires indicate a win-win situation for customers as well as online enterprises.

The second paper “Owner-Borrower Model for Recommenders in O2O Services” considers the O2O recommendation framework for matchmaking between owner and borrower. Especially, they propose a recommendation method based on applying a tensor factorization method and the Gale-Shapley algorithm. The tensor factorization is used for estimating preferences of the owners and the borrowers. The proposed framework can be expected to implement various O2O services.

The third paper “Detecting Human Emotions in a Large Size of Database by using Ensemble Classification Model” presents a novel human emotion detection system by using ensemble classification model (with Support Vector Machine, Neural Network and k-Nearest Neighbors). The evaluation results show that emotion classification by using the ensemble classification method can be better than the single classification-based model.

The fourth paper “Transportation Object Detection with Bag of Visual Words Model by PLSA and MLP” investigates how to analyze visual big data for transportation services. It shows a new visual detection method for transportation based on probabilistic latent semantic analysis with visual data. Particularly, a multilayer perceptron (MLP) is used as the classification method in the system and probabilistic latent semantic analysis (PLSA) is compared to the MLP using the Caltech 256 datasets.

The sixth paper “Towards Social Big Data-based Affective Group Recommendation” studies how to analyze social big data for providing users with affective recommendation. Particularly, it focuses on group recommendation which can maximize the total user satisfaction by considering social affinities among them. This study’s results have found out that the Mahalanobis distance was suitable for the affective group recommendation. Moreover, the proposed method outperformed the other group recommender systems with large groups.

The last paper “A Deep-Big Data Approach to Health Care in the AI Age” has shown an interesting deep learning approach to analyze big health-care data. Particularly, it seriously discussed the impact that Artificial Intelligence and

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Decision Support Systems have to eve-ryone in the healthcare sector engaged to quality-of-care.

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