

# Foreword and Editorial

## International Journal of Urban Design for Ubiquitous Computing (IJUDUC)

We are very happy to publish this issue of an International Journal of Urban Design for Ubiquitous Computing by Global Vision School Publication.

This issue contains 3 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 paper “Design of education program used physical computing for improving the computational thinking: applying Rubrics list”, the purpose of this study is to develop a CT training program using a Physical Computing tools so that more effective CT training can be done to improve the capacity of Computational Thinking. As SW education is designated as an essential subject for middle school, various instructional design and CT evaluation studies are actively carried out to improve CT competence. The CT education using the Physical Computing tools has proven its effectiveness in many previous researches.

Seiter and Foreman proposed a Progression of Early Computational Thinking PECT model to evaluate the CT competence of elementary school students. Brennan and Resnick have developed CT evaluation framework and have been studying their design and evaluation. Based on this, Rubrics evaluation was devised so that CT learning can be evaluated. Therefore, in order to improve CT competency, we designed Rubrics items and CT-RLPS-based training programs for Physical Computing classes.

In the research “NAND Flash Main Memory Database Index Management Technique Using the T\* Tree Segment Mapping Log”, NAND flash memory is a storage device that is suitable for the mobile environment, and it is widely used in mobile devices. However, because NAND flash memory does not support overwriting, FTL (Flash Translation Layer) is required to use application programs that are based on the existing hard disk. Implementing FTL in mobile devices requires a lot of memory and burdensome computation costs. Studies in optimizing the index data structure and an index management technique using the page mapping log have been suggested, improving performance and search time. However, this technique used the B+ tree of the disk-based environment, which is not suitable for the main memory database environment of mobile devices. Therefore, this paper proposes a technique that is suitable for the main memory database environment of mobile devices: an index management technique using SML (Segment Mapping Log) of the T\* tree.

In the paper “Life Balance Service using Big Data based Feature Extraction”, the commercialization of various smart devices capable of collecting lifelogs has raised expectations regarding the utilization of lifelogs in health care services. Lifelogs sufficiently cover all of the features of Big Data and present time series properties. Due to this, there are difficulties with respect to the integration, processing, and analysis of lifelogs. In consideration of this, this study proposed a life balance service based on Big Data based feature extractions. This regarded the analysis of lifelog features and the pursuit of life balance predictions through collaborative filtering and user log data through dimensional

reductions and similarity calculations using the features. In addition, performance evaluations regarding the accuracy of predictions and user satisfaction were undertaken to validate the effectiveness of the proposed method. As a result, the proposed method presented a 16.5% higher accuracy in predicting life balance than existing methods while also presenting excellent levels of user satisfaction. In light of this, the provision of life balance services through the proposed is expected to enable efficient life habit correcting health services using the log data of users.

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**Editors of the September Issue on  
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