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Welcome message from the Editors

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This special issue is dedicated to Innovations for Community Services. The issue highlights papers selected from the presentations given during the 2014 14th International Conference on Innovations for Community Services (I4CS), held in Reims, France, June, 2014. The goal of this conference was to bring together researchers, professionals and practitioners at all levels, including students, faculty and research scholars in order to share and exchange original research ideas on Innovations on Community Services. It is a collection of five papers which cover a various subjects in Technologies of Distributed architectures and frameworks ; on applications about communities on the move and socialization about ambient work and living. The motto of the 14th I4CS conference was "Technologies for Everyone". A broad overview of each paper is included below.

Supervisory Control and Data Acquisition (SCADA) systems are widely used for monitoring and control of Industrial Control System (ICS) of national critical infrastructures, including the emerging energy system, transportation system, gas and water systems, and so on. Generally, ICS is comprised of Programmable Logic Controllers (PLCs), Remote Terminal Units (RTUs) with Intelligent Electronic Devices (IEDs), a telemetry system, a Human Machine Interface (HMI) and a supervisory (computer) system. In a SCADA based ICS, communication infrastructures connect the supervisory (computer) systems and the RTUs. The primary objective of a SCADA system is to control real-life physical equipment and devices, e.g., energy system SCADA may be used for monitoring and control of the generation plants. On the other hand, conventional information based traffic network is used for data processing and transfer. As the primary objective of the SCADA is different from the conventional information network, the operational process and its requirements vary significantly. Since the SCADA is used to control critical infrastructures, the failure severity is very high which needs a high level of reliability requirements. Clustering is a useful unsupervised technique to identify the underlying pattern in the data as well as anomaly detection. In the paper [p893], the effectiveness of co-clustering which efficient over usual clustering for providing more fine-gained representation of data and computationally efficient is investigated. A multi-stage co-clustering based anomaly

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detection technique is proposed and applied on seven benchmark SCADA datasets.

In p722, an approximate method to estimate the performance of the synchronization stations of an Extended Kanban production system is proposed. It could be used to assess overall performance of a production system in a multistep sequence. The Extended Kanban system is used to coordinate production systems - stocks in multistage series. The basic operation of an Extended Kanban system can be summarized as two basic principles. a) When a request reaches the system it is immediately transferred to all stages of the system and b) In order to release a component from one stage to the next there must be a free Kanban in the next step. Solving an Extended Kanban system can be achieved similarly to other production control systems. The system is modelled as an open network of queues with synchronization stations. By changing the roles between the components and Kanban a closed queuing network is obtained. Next, the network is decomposed into subsystems, each of which includes a single stage of the production process and the neighbouring subsystems communicate with each other since they share common synchronization stations. Each subsystem is analysed and the service rates of each is calculated. Then, an iterative procedure is used to solve the overall system.

The use of web services is continuously growing and the technological and economic potential is not yet tapped. The web services have become in recent times by far the technology application integration par excellence as it is now feasible to host basic web services on a smart phone without requiring additional technologies. Web Services are software components that can be accessed over the Internet using well established web mechanisms. For instance, in the IT domain the impact of XMLWeb Services has increased during recent years, since the Extensible Markup Language (XML) has been enforced as a meta language for structured information and its representation

Web services are self-descriptive loosely coupled and interact with each other. They are defined anddescribed regardless of their platforms, implementation details. The biggest advantage of Web Services lies in their simplicity in expression, communication and servicing. The componentized architecture of Web Services also makes them reusable, thereby reducing the development time and costs As the market capture of Web services is increasing significantly, in the past years, the applications are quite welcoming the ability to provide secure and reliable communication in the vulnerable and volatile mobile networks. Performance evaluation of these architectures is essential but complex due to synchronization inside the orchestration of services. Consequently, the increasing complexity of such architectures requires the development of methods and tools in order to monitor and evaluate their QoS. In fact, the QoS degradation can lead to serious consequences including a significant economic impact.

The paper p718 addresses this issue. It mainly focus on the composite Web service (CWS) response time computation, where the requests are decomposed into sub-queries to different elementary Web services and then merged into a final result. This includes the following models:

- parallel invocation of a constant number of elementary Web services merged by a federating component;

- parallel invocation of a variable number of elementary Web services merged by a federating component.

Visual surveillance has become an important task in the last years. Its main objective is to find changes over time in a sequence of images, specifically, detect objects that don't belong to a fixed scenario. Motion-related changes are most important but this task is linked with other higher-level tasks such as localization, identification and tracking of moving objects. Therefore, detecting changes is considered as a key-pre-processing step of a video surveillance system. Activities in which visual surveillance is used include protection of strategic facilities, pedestrian detection, analysis of suspicious behaviour, etc.

When one analyse a sequence of images used in surveillance, he can always observe two main features:

- The first feature refers to a part of the image that remains temporarily constant, i.e. does not suffer any change unless there are moving

objects or capturing device suffers a displacement intentionally or not.

-The second feature is about statistical majority formed by certain color intensities, like in an oversea image, predominant color will be blue.

Background modelling or subtraction (BS) is an important component in a video surveillance system because it helps to distinguish moving or incoming objects in a sequence of images. The main objective of BS algorithms is to classify all moving objects as foreground and then identify interesting areas of an image for further analysis.

P705 presents a new background subtraction method designed to deal with particular conditions of aerial images. The method is capable to deal with motion of UAV to extract background information. They have used spatial and temporal information to classify pixels between foreground and background. They have used an adaptive method focused to weight spatial or temporal information depending if motion of UAV is smooth or not. Experimental results of sequences under different conditions demonstrate robustness of A2Ba. Evaluation and comparison with existing methods show that A2Ba provides same results in motionless sequences and improved performance when sequences are unstable (camera motion).

In the framework of data mining, the classical ways to determine representative elements refer to the task of clustering. The representative elements are prototypes selected from a partition of the dataset into clusters. This approach assumes that the number of exemplars is equal to the number of clusters.

Unfortunately when exploring a dataset, the number of clusters is unknown. If a cluster contains more than one sub-population, then only one prototype is extracted. But more than one exemplar is expected. Moreover the exemplars are real data extracted from the dataset. But the prototypes are often virtual elements that does not make sense. For instance the classical k-means algorithm determines k mean-elements as prototypes that are not exemplars. There are multiple lacks of the approaches based on clustering. Firstly the partition into clusters is predate to the extraction of representative elements and the clusters have to be validated and interpreted to justify the prototypes. Secondly the choice of clustering algorithms depends on implicit assumptions about the shape of clusters and data distributions which are unknown.

Most of the methods for extracting exemplars are iterative. That is the case when using the k-medoids algorithm for determining k exemplars. First k exemplars are randomly selected from the dataset. Then the algorithm iteratively refines this set of exemplars. The affinity propagation method of Frey and Dueck also proposes to extract exemplars by iterative process. Unfortunately the final elements proposed as exemplars are quite sensitive to the initial selection, they depend on input parameters and on the way to stop the iterative process. To circumvent this drawback, this paper proposes a one pass method to extract exemplars from a dataset without any assumption on the shape or the density of data distribution. The method proposed in p698 is only based on a relation that permits a pairwise comparison of data. Using this relation the authors defined a degree of representativeness (DoR). The exemplars are finally chosen as local maxima of the DoR. Then they show how to build a directed graph to visualize the organization of dataset around the exemplars as trees. By fitting the locality parameter called scale factor they determine the exemplars at each scale that the user needs.