Guest Editorial Preface

Service Engineering Toward Human-Centered Service Design

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The problems confronting service industries today are how to improve efficiency of actual services and how to design new services that will enhance values for people. However, it becomes more difficult to understand the value of services in the light of rapid globalization and information networking because those can change due to consumers’ various values and social situations. Although recent information technologies bring us large scale data on consumers’ various behaviors such as purchasing, mobility and opinions through actual services, there is no well-established methodology to create new services based on such a variety of data. Consequently, human-related factors such as consumers’ behaviors, cognition, value judgments, and social interactions are receiving greater attention for the improvement of actual services and design of new services.

Service engineering is a new research field to support actual services by integrating academic disciplines such as engineering, computer sciences, human sciences, and social sciences. At present, it should be important for researches to explore new methodologies to elucidate the value of services for consumers and to design new services by integrating the scientific knowledge developed in various research fields.

This special issue introduces some academic challenges on service engineering toward human-centered service design.

Tomoya Ishikawa, Masakatsu Kourogi, and Takeshi Kurata introduce a new indoor pedestrian tracking system that can economically improve the tracking performance and the quality and value of services by incorporating other services synergistically in their article, Economic and Synergistic Pedestrian Tracking System with Service Cooperation for Indoor Environments. Especially in the labor-intensive service industries, it is important to understand human behavior of customers and employee for the improvement of service efficiency and quality. However, the measurement of human behavior in actual services has both technical and cost problems.

Kensuke Naoe, Hideyasu Sasaki and Yoshiyasu Takefuji propose their information hiding technology using machine learning that can be used for fingerprint or watermark signal of the digital contents in their article, Information Hiding by Machine Learning: A Method of Key Generation for Information Extracting using Neural Network. In expanding network services, underlying technologies on information security are crucially important for the creation of new service systems.
Nobutada Fujii, Toshiya Kaihara and Tomoya Yoshikawa discuss the service diffusion in networked society in their article, *Multiagent System-Based Simulation of Service Diffusion in Consumer Networks: Introducing Heterogeneity into Consumer Utility*. Social interaction among consumers especially in the internet community makes it more difficult to understand the value of service and product. They present a multiagent system-based model for examining service diffusion among consumer interactions that are modeled as complex networks incorporating heterogeneity of consumer utility. Social acceptability for service is one of the most important topics in service engineering.

Nariaki Nishino, Koji Fukuya, and Kanji Ueda discuss service design in movie theaters and examine a proposed auction mechanism considering seat reservations in their article, *An Auction Mechanism Considering Seat Reservations in Movie Theater Services*. To design the mechanism of a new service, we must consider both each customer’s satisfaction and total profitability of the service. In this respect, their research methodology is unique and transdisciplinary; they conducted experiments with human subjects to elucidate the processes of customer’s decision-making and agent-based simulation to understand the social surplus of the new service.

Finally, we would like to appreciate all those contributors of this special issue and supporters to IJOCI. We hope our audience may enjoy this special issue and find great potential in the new research field, service engineering.

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