

Preface

The International Journal of Technology and Web Engineering (JITWE) outlines a critical dimension of Web Engineering (WE) systems and tools supporting knowledge sharing among individuals within organizations and members of virtual organizations. In an effort to facilitate and foster such dimensions and views about Web engineering concepts and practices, we selected related articles published in the first two volumes of JITWE and include them in this book: *Integrated Approaches in Information Technology and Web Engineering Advancing Organizational Knowledge Sharing*.

While we do not claim that these papers address all issues raised in WE research, these two volumes address several of these issues. We categorized all chapters in each of these two independent manuscripts into several sections, each of which outlines information technology and Web engineering research areas. The current volume includes foundational and timely articles addressing advancements in open source, platforms and architectures, and development. The following provides an overview of the contents of each section in this manuscript:

- **Section I—Open Source:** Research group support, open source development projects and environments.
- **Section II—Platforms and Architecture:** Wireless and mobile computing and networks, scheduling in mobile computing and grid systems, distributed Web servers and MANETs, secure DNS updates.
- **Section III—Development:** Software product lines, secure agile development, component based data management, data warehousing, WS discovery systems, defects in e-projects, web site performance, semantic service oriented manufacturing, web application tools.

Section I: Open Source

The July/August 2008 issue of Technology Review published by MIS (technology review, 2008) addressed an important area in open source and the Internet: the concept of social networks which brings people around the world to share and develop open source software and applications.

In another related strategic direction, both Microsoft and IBM are competing in the area of open source by making their corresponding products available for customers. (Microsoft, 2007)

Stimulated by this pervasive trend and other research in this area (Watson, et. al, 2008), this section includes all chapters based upon articles that appeared in a related special issue. Although, these articles could be reclassified, we decided to keep them in a separate section to reflect the research area's importance and its special characteristic to Web engineering. Early chapters expand on the concept of collaboration and social interaction using open source tools for research groups, while later chapters include an analysis of social networks as it applies to open source projects. Contributions in this section also present a method for the analysis and validation of software development process in an open source environment and explain the use of open source in the development and understanding of Web engineering systems and environments.

Section II: Platforms and Architectures

This section contains chapters based upon previous issue articles on platforms and architectures of Web engineering. These areas include wireless networks and mobile computing. Follow on chapters present scheduling algorithms in heterogeneous grid systems. An approach to object grouping and replication on a distributed Web server system is then presented. Chapters then present a Modified Backoff Algorithm for MAC Protocol in MANETs and an architecture and implementation on secure online DNS dynamic updates. Chapters then present FSR evaluation using the suboptimal operational values.

Section III: Development

This section contains chapters related to the development of Web engineering applications. The first chapters cover application development under varied environments and approaches, such as software product lines, component-based knowledge discovery, agile development for secure systems, Web data warehousing, ontology data modeling, Web Service Discovery Systems, and semantic service-oriented manufacturing. Later chapters present a new approach to using growth function for modeling defects in e-projects. This is followed by the presentation of research on Web site performance analysis and the explanation of a tool to support model-driven development of Web applications.

While these sections contain research related to knowledge sharing in organizations, future research should address issues related to integrating information technologies and Web engineering methods, such as agents, Virtual Private Network (VPN), peer-to-peer networks, ontology, semantic web, searching, and indexing, with the objective of building organization learning and memory through knowledge management systems. (Chan and Chao, 2008) (Yueh and Jsu, 2008) The Internet provides a seamless platform for the collection and dissemination of knowledge across organization boundaries linking enterprises, virtual teams, and members of virtual organizations.

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