

FIT 2014 Preface

After decades of slowly expanding behind the scenes, information technology has suddenly exploded into public view and has become inseparable part of our daily life. It is like a huge wave that has been building offshore, only to become noticeable as it crests and then breaks on the beach. At the moment, we are all caught in the boiling surf of this breaking wave. The stories in the media on such topics as the information superhighway, multimedia, or the Internet have been realized. These aspects of information technology have rapidly affected the way we work, live, and play and we will never be the same.

The information technology has changed not only individual lives but societies are emerging to be built on technology, knowledge and intelligence. Free flow of information empowers people which is transformed into knowledge and ultimately to intelligence. Appropriate use of knowledge contributes to raising the quality of life. Advances in theoretical understanding of information technologies and their widespread development and implementations are causing transformations in the areas as diverse as education, research, healthcare, science, entertainment, government, international trade, education, commerce and many others. The technological advancement in processing, storage, transmission, and sharing of information are taking place at an unprecedented pace. The access to updated information, without spatial or temporal constraints has made information an economic resource structuring and shaping today's society.

By the business perspective Information Technology has created new ways of doing business. Globalization, demographic change and the growing influence online trade are reshaping our world at breathtaking speed. The galvanizing world economy based on digitally empowered enterprises and people is giving rise to a new set of critical success factors for competition and even for survival in the global marketplace. Information has become an important source as well as ingredient for projecting economic advancement. It is a touchstone issue for entrepreneurs to utilize information as a key factor of production. Together, these forces are creating synergetic influence on the governments to restructure their mandates to remain transparent and relevant in a competitive world.

Pursuing exploration of new frontiers in information technology research bestows us with new dimensions in wisdom and brings forth promise, which steer change, involve risks, ensure transparency and offer higher returns. The future will belong to those individuals, organizations, and nations who are able to capitalize on the revolutionary, rapid and sustained efforts in the processing and shaping information in order to generate knowledge to increase their growth.

Envisaging importance and fostering vision towards achieving the objectives those information technology forefronts us in different contexts, a three days conference on Frontiers of Information Technology was organized by the COMSATS Institute of Information Technology (CIIT) on December 17-19, 2014 at Serena Hotel, Islamabad. The conference is 12th in the series since its inception in 2003. The conference was conducted in collaboration with Higher Education Commission of Pakistan (HEC), National Testing Service (NTS), and technically co-sponsored by IEEE, IEEE Computer Society's Technical Committee on Scalable Computing and Green Computing, and IEEE Industrial Electronics Society.

It gave us immense pleasure to introduce this collection of papers and abstracts that have been presented at this twelfth International conference on Frontiers of Information Technology (FIT 2014). The event brought together several experts, researchers and scientists from around the world to share their research and development experiences in the field of Information Technology with a select gathering of intelligencia, policy planners, analysts, academicians, industry professionals and a fairly diverse representation from other members of civil society. The conference centered on identifying and expressing with clarity and effectiveness the research and development challenges and agenda in Information Technology. Technical papers presented in the conference were from following areas:

- Artificial Intelligence
- Software Engineering
- Communication and Networking
- Scalable Computing
- Embedded systems
- Smart Grids
- Distributed and Grid Computing
- Green Technologies
- Signal Processing
- Industrial Electronics
- Robotics/Control Systems
- Computer Graphics, Image Processing and Pattern Recognition
- Information Security
- Data Mining/ Data Warehousing
- Mobile Applications
- Industrial Automation
- E-services & M-services

In FIT 2014, 309 research papers were submitted and 68 papers were accepted yielding an acceptance rate of 22%. In addition to technical papers, tutorials, PhD symposium, are also part of the conference program. We are thankful to all those who submitted papers for consideration. Gone through strict evaluation process many papers fell short of the selection criteria and we would like to encourage them to keep submitting in the next year FIT conference. We are also very grateful to those colleagues and organizations that helped us in organizing the conference. In particular, we would like to thank the members of the FIT 2014 Program Committee which we hope will offer their help again in organizing the next year's conference. We would also like to thank Higher Education Commission (HEC), National Testing Service (NTS) and COMSATS IIT administration for managing all aspects of the conference.

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