Foreword

Information Technology (IT) has become ubiquitous and is changing every facet of our life. Since its inception, information and communication technologies (ICT's) have revolutionized the world through advancement in the area of education, medicine, automobiles, real estate, security, banking and entertainment. IT has transformed the world into a global village and information regarding politics, culture and commerce are no longer confined to any geographical location. Thanks to IT culture, the industrial developments have amplified manifolds exploring new avenues of opportunities for people to earn their living. Availability of the state-of-the-art equipment in the field of medicine has made it easier for doctors to diagnose and cure chronic diseases. No doubt, IT has provided myriad education opportunities to students by enabling them to overcome distance barriers through educational websites, teleconferencing, online interviews and much more. IT has enhanced the quality of entertainment by replacing old analog technology with new and advanced digital technology. Today, we cannot imagine our lives without our smart phones, laptops and other electronics gadgetries; which are nothing but wonders of flourishing information technology.

Innovations in IT have created jobs, promoted the growth of new markets and increased international trade and investments. To harness maximum benefit out of these developing technologies, prudent policies through close consultation between government, private sector experts and other stake holder are the only way forward in this era of rapid globalization. IT is a major contributor to the progress and development of countries. Today government and private companies are functioning together to provide IT solutions vital for their growth.

Foreseeing significance and nurturing vision towards achieving the objectives that the information technology affords us, a three day conference on Frontiers of Information Technology (FIT) was organized by COMSATS Institute of Information Technology (CIIT) on December 16-18, 2013 at Serena Hotel, Islamabad. This conference was 11th in series since its commencement in 2003. The conference was held in association with Higher Education Commission of Pakistan (HEC), National Testing Service (NTS), National ICT and R&D fund and Pakistan Science Foundation. The conference was technically co-sponsored by IEEE computer society, IEEE Industrial Electronics Society and IEEE Islamabad chapter.

It gives us immense pleasure to introduce this collection of papers that have been presented in this eleventh conference on FIT 2013. The conference was attended by researchers and scientists having experience of leading universities and industries of the world. This gave interaction opportunity to the participants that included analysts, policy makers, academia, industry professionals and also members of civil society. The main theme of the conference was to bring into limelight the importance of research and development in the field of information technology. The majority of technical papers received were in the following research areas:

- Communication and Networks
- Software Engineering
- Computer Graphics
- Image Processing
- Pattern Recognition and
- Artificial intelligence

In FIT 2013, 203 technical papers were submitted, out of which 58 were accepted yielding an acceptance rate of 28.5%. Moreover, PhD symposium, tutorials and IT innovation awards were also part of the conference. Invited talks and workshop sessions during this three day conference were attended by huge gathering due to its appealing technical and non technical issues as highlighted by expert speakers. We express our gratitude to all those who submitted their papers. Due to our strict evaluation criteria some papers could not be published in the conference. We would like to encourage the authors to keep submitting in the coming FIT conference. We especially thank FIT program committee for their dedicated efforts for the successful completion of the conference. We also hope to get their support in next year's conference. We would also like to thank HEC, NTS, ICT R&D fund, Pakistan Science Foundation and COMSATS IIT administration for managing all aspects of the conference.

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Program co-chair FIT 2013