

# Preface

The last decade has witnessed remarkable changes in IT industry, virtually in all domains. The 50th Annual Convention, CSI-2015, on the theme “Digital Life” was organized as a part of CSI@50, by CSI at Delhi, the national capital of the country, during December 2–5, 2015. Its concept was formed with an objective to keep ICT community abreast of emerging paradigms in the areas of computing technologies and more importantly looking at its impact on the society.

Information and Communication Technology (ICT) comprises of three main components: infrastructure, services, and product. These components include the Internet, infrastructure-based/infrastructure-less wireless networks, mobile terminals, and other communication mediums. ICT is gaining popularity due to rapid growth in communication capabilities for real-time-based applications. “Nature Inspired Computing” is aimed at highlighting practical aspects of computational intelligence including robotics support for artificial immune systems. CSI-2015 attracted over 1500 papers from researchers and practitioners from academia, industry, and government agencies, from all over the world, thereby making the job of the Programme Committee extremely difficult. After a series of tough review exercises by a team of over 700 experts, 565 papers were accepted for presentation in CSI-2015 during the 3 days of the convention under ten parallel tracks. The Programme Committee, in consultation with Springer, the world’s largest publisher of scientific documents, decided to publish the proceedings of the presented papers, after the convention, in ten topical volumes, under ASIC series of Springer, as detailed hereunder:

1. Volume # 1: ICT based Innovations
2. Volume # 2: Next Generation Networks
3. Volume # 3: Nature Inspired Computing
4. Volume # 4: Speech and Language Processing for Human-Machine Communications
5. Volume # 5: Sensors and Image Processing
6. Volume # 6: Big Data Analytics

7. Volume # 7: Systems and Architecture
8. Volume # 8: Cyber Security
9. Volume # 9: Software Engineering
10. Volume # 10: Silicon Photonics & High Performance Computing

We are pleased to present before you the proceedings of Volume # 4 on “Speech and Language Processing for Human-Machine Communications.” The idea of empowering computers with the power to understand and process human language is a pioneering research initiative. The main goal of SLP field is to enable computing machines to perform useful tasks through human language like enabling and improving human-machine communication. The past two decades have witnessed an increasing development and improvement of tools and techniques available for human-machine communication. Further, a noticeable growth has also been witnessed in the tools and implementations available for natural language and speech processing.

In today’s scenario, developing countries have made a remarkable progress in communication by incorporating the latest technologies. Their main emphasis is not only on finding the emerging paradigms of information and communication technologies but also on its overall impact on the society. It is imperative to understand the underlying principles, technologies, and ongoing research to ensure better preparedness for responding to upcoming technological trends. Keeping the above points in mind, this volume is published, which would be beneficial for researchers of this domain.

The volume includes scientific, original, and high-quality papers presenting novel research, ideas, and explorations of new vistas in speech and language processing such as speech recognition, text recognition, embedded platform for information retrieval, segmentation, filtering and classification of data, and emotion recognition. The aim of this volume is to provide a stimulating forum for sharing knowledge and results in model, methodology, and implementations of speech and language processing tools. Its authors are researchers and experts in these domains. This volume is designed to bring together researchers and practitioners from academia and industry to focus on extending the understanding and establishing new collaborations in these areas. It is the outcome of the hard work of the editorial team, who have relentlessly worked with the authors and steered them up to compile this volume. It will be a useful source of reference for the future researchers in this domain. Under the CSI-2015 umbrella, we received over 100 papers for this volume, out of which 23 papers are being published, after rigorous review processes carried out in multiple cycles.

On behalf of the organizing team, it is a matter of great pleasure that CSI-2015 has received an overwhelming response from various professionals from across the country. The organizers of CSI-2015 are thankful to the members of the *Advisory Committee, Programme Committee, and Organizing Committee* for their all-round guidance, encouragement, and continuous support. We express our sincere gratitude to the learned *Keynote Speakers* for their support and help extended to make this event a grand success. Our sincere thanks are also due to our *Review Committee*

*Members* and the *Editorial Board* for their untiring efforts in reviewing the manuscripts and giving suggestions and valuable inputs in shaping this volume. We hope that all the participants/delegates will be benefitted academically and wish them all the best for their future endeavors.

We also take the opportunity to thank the entire team from Springer, who have worked tirelessly and made the publication of the volume a reality. Last but not least, we thank the team from Bharati Vidyapeeth's Institute of Computer Applications and Management (BVICAM), New Delhi, for their untiring support, without which the compilation of this huge volume would not have been possible.

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