

# 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. The Silicon Photonics & High Performance Computing includes design and analysis of parallel and distributed systems, embedded systems, and their applications in scientific, engineering, and commercial deployment. 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 the 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 # 10 on “Silicon Photonics & High Performance Computing.” Presently, the data is growing exponentially. This data is an outcome of continuous research and development, demanding our serious concerns toward its safety. Computing is all about processing data in a meaningful manner; hence, it assumes a significant space in today’s research arena. The present CSI-2015 track, Silicon Photonics and High Performance Computing, is even more relevant due to this specific reason. It is our pleasure and honor to serve as the editor of the proceeding of this track. This is a constant and consistent activity organized and conducted by the Computer Society of India, and it is a matter of satisfaction that the Springer has agreed to publish all its proceedings.

This volume is unique in its coverage. It has received papers from all research domains—from photonics/optical fiber communication systems used for different applications to high-performance computing and cloud computing for social media analytics and other very relevant high-ended applications such as supply chain analysis and underwater signal processing. The articles submitted and published in this volume are of sufficient scientific interest and help to advance the fundamental understanding of ongoing research, applied or theoretical, for a general computer science audience. The treatment of each topic is in-depth, the emphasis is on clarity and originality of presentation, and each paper is adding insight into the topic under consideration. We are hopeful that that this book will be an indispensable help to a broad array of readers ranging from researchers to developers and will also give significant contribution toward professionals, teachers, and students.

A great deal of effort has been made to realize this book. We are very thankful to the team of Springer who have constantly engaged us and others in this process and have made the publication of this book a success. We are sure this engagement shall continue in future as well and both Computer Society of India and Springer will choose to collaborate academically for the betterment of the society at large. Under the CSI-2015 umbrella, we received over 100 papers for this volume, out of which 15 papers are being published, after rigorous review processes, carried out in multiple cycles.

On behalf of 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 *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 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, giving suggestions and valuable inputs for shaping this volume.

We hope that all the participated delegates will be benefitted academically and wish them 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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Guna, India

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