

Proceedings of  
**International Conference**  
on  
**Security and Authentication**

Editor  
**Prof.Dr.Rajesh R**

27<sup>th</sup> - 28<sup>th</sup> March 2014

**Jointly Organized by**

School of Computer Science,  
Mahatma Gandhi University, Kottayam



AND



Department of Computer Applications  
**Sree Narayana Gurukulam College of Engineering**  
Kadayiruppu, Ernakulam, Kerala, India

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## International Conference on Security and Authentication - SAPIENCE14

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# Preface

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I am very proud and honoured to have been entrusted to edit this conference proceeding of SAPIENCE14 International conference on Security and Authentication. The vision of this conference was to provide an international forum for presentation of research works in the vicinity of Security and Authentication.

The conference aims to bring together academicians, researchers, engineers, IT people, industrialists and students to share and discuss both theoretical and practical aspects, fundamental challenges and future directions in the field of Security issues and various authentication protocols. The overwhelming response to our call-for-papers indicates the popularity of this conference and confirms that SAPIENCE14 has become the world-wide forum for all aspects of science and technology in the field of Security and Authentication related topics. Papers were sought to cover comprehensively the most important directions of research work and Twenty Nine papers are included in this book.

Many individuals contributed to the success of this issue. I take this opportunity to thank all the authors for their submission. I am also indebted to all the reviewers who have put their hard work to review each paper in a timely and professional way.

I express our sincere gratitude to Prof.Dr.R.Vijayakumar, Director, School of Computer Science, Mahatma Gandhi University for accepting our proposal to organize this conference jointly. I also express our gratitude to Prof. Dr. Zouheir Trabelsi, Dr.Gaurav Gupta and Mr. Neelabh Rai for accepting our invitation to deliver the keynote addresses.

It is a special privilege to record my heartfelt gratitude to all the members of Programme Committee for their excellent support. I whole heartedly acknowledge the contributions of my colleagues in the department as well as in the college. Finally I am grateful to all those who have contributed to the success of SAPIENCE14.

Editor  
**Prof.Dr.Rajesh R**

## Message from Conference Chair

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It is my great pleasure to welcome you to the SAPIENCE14- International Conference on Security and Authentication on 27-28 March 2014. It was an honour and a pleasure to be able to serve the International community by bringing together researchers, scientists, and students, from academia and industry, to this International Conference. This conference has been established to serve as the premier forum covering research on Security and Authentication issues in the emerging area of Network, Information, Databases, System and Cyber world.

The conference would not have been possible without the enthusiastic and hard work of a number of colleagues. We would like to express our appreciation to the Conference Co-Chair Dr. C B Saji, Organizing Chairperson Prof. Sandhya R and Organizing Secretary Prof.Dr.Rajesh R, for their valuable contribution in assembling the high quality conference program.

Besides the paper authors and reviewers, we would like to thank the Organizing Committee members of SAPIENCE14 who actually do the organization here; without their support, our jobs would have been much harder. They made it possible for us to focus on creating the conference program, without worrying about the endless details of conference organization and proceedings publication.

**Prof.Dr.R.Vijayakumar**  
**Director, School of Computer Science**  
**Mahatma Gandhi University, Kottayam.**

## Keynote Speaker Message

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### **Neelabh Rai**

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### **Transforming National Security through India-centric Multi-Sectoral Cyber-Security Governance**

With the ever increasing role of cyber domain in globalization and e-governance, coupled with fast growing cyber-literates of varying integrity, there is an urgent need to re-look the security perspectives of the country, especially in the light of inherent vulnerabilities of this domain on account of its international nature, dynamic environment, and ever changing software and hardware technologies. Indeed, the scope and nature of threats and vulnerabilities in software and hardware design, by installing cyber backdoors, is multiplying with every passing day. This has created enough scope for development of India-specific cyber security innovations, in the form of indigenous hardware and software development in order to safeguard the critical infrastructure of the country, beyond the basic policy of cyber hygiene and cyber resilience. Cyber security is a complex issue that cuts across multiple domains and calls for multi-dimensional, multi-layered initiatives and responses. For instance, communications are critical to everyday life, wherein cyber domain provides a global social and economic communications platform. Nonetheless, all forms of communications rely on electronic transmissions that may be monitored by a

third party. In fact, human intervention is the weakest link in providing any type of security, more so in information security. Intelligence gathering and data theft is an accepted reality, and cyberspace possibly provides the best scope for this. Indeed, information collected and collated from intercepted diplomatic, military, commercial and financial communications offers potential competitors an advantage. Understanding of communication networks also enable a perpetrator to disrupt or even destroy a target's command and control centres, should the need arise. Strengthening telecommunications security is a pillar of cyber security, especially through development of standards and establishment of testing labs for telecommunication infrastructure. There is a need to understand the process of Authentication and Authorisation, a skill crucial to data protection and an essential skill needed by programmer. It is felt that investing in technological capacities to keep track of global developments, developing countermeasures and staying ahead of the competition, is central to the defence of cyberspace. Additionally, there is a need to increase the sharing of real-time information between the government and other stakeholders that can help raise strength of deterrent, proactive and reactive measures. Ad hoc and piecemeal approach may endanger national security. Furthermore, in an evolving cyber security landscape capacity building i.e., the talent that responds to sophisticated threats in a timely manner, is must. Indeed, there is an acute shortage of trained cyber security researchers and professionals and active cyber thinkers in the country; therefore, it is also felt that the empowerment of such cyber leaders, who know both technology and governance, is required at the helm of affairs in both public and private sectors.