

# **Internet of Things**

Technology, Communications and Computing

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Editors

# Internet of Everything

Algorithms, Methodologies, Technologies  
and Perspectives

 Springer

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# Contents

<b>Trends and Strategic Researches in Internet of Everything</b> . . . . .	1
Beniamino Di Martino, Kuan-Ching Li, Laurence Tianruo Yang and Antonio Esposito	
<b>Towards an Integrated Internet of Things: Current Approaches and Challenges</b> . . . . .	13
Beniamino Di Martino, Antonio Esposito, Stefania Nacchia and Salvatore Augusto Maisto	
<b>Energy Harvesting in Internet of Things</b> . . . . .	35
Cheuk-Wang Yau, Tyrone Tai-On Kwok, Chi-Un Lei and Yu-Kwong Kwok	
<b>A Detailed Analysis of IoT Platform Architectures: Concepts, Similarities, and Differences</b> . . . . .	81
Jasmin Guth, Uwe Breitenbücher, Michael Falkenthal, Paul Fremantle, Oliver Kopp, Frank Leymann and Lukas Reinfurt	
<b>Fog Computing: A Taxonomy, Survey and Future Directions</b> . . . . .	103
Redowan Mahmud, Ramamohanarao Kotagiri and Rajkumar Buyya	
<b>Challenges and Opportunities in Designing Smart Spaces</b> . . . . .	131
Yuvraj Sahni, Jiannong Cao and Jiaying Shen	
<b>SMART-FI: Exploiting Open IoT Data from Smart Cities in the Future Internet Society</b> . . . . .	153
Stefan Nastic, Javier Cubo, Malena Donato, Schahram Dustdar, Örjan Guthu, Mats Jonsson, Ömer Özdemir, Ernesto Pimentel and M. Serdar Yümlü	
<b>A Case for IoT Security Assurance</b> . . . . .	175
Claudio A. Ardagna, Ernesto Damiani, Julian Schütte and Philipp Stephanow	

**Study on IP Protection Techniques for Integrated Circuit in IOT Environment** . . . . . 193  
Wei Liang, Jing Long, Dafang Zhang, Xiong Li and Yin Huang

**Cyber Defence Capabilities in Complex Networks** . . . . . 217  
Dragoş Ionică, Nirvana Popescu, Decebal Popescu and Florin Pop

# Introduction

Connected sensors and devices are a pervasive reality, as we interact more or less knowingly with smart items everyday. While smartphones represent the main Internet-connected devices which people interact with during their daily lives, other intelligent items are at our disposal, and they are so integrated with the environment that we fail to notice them. Animals too participate in this relatively new phenomenon, as the use of subcutaneous chips to identify and track them are widely used. In the modern era, where each item and living being (animal or human) are or can be connected to others and share data, the Internet of Everything has become a new buzzword, and great attention has aroused for the huge variety of possible applications of such technologies, together with concerns regarding privacy and security.

Previous Springer books have been published on the Internet of Things topics, such as [1] and [2], the latter belonging to the same **Internet of Things** series of the present volume. In the present book, several aspects of the IoT phenomenon are analyzed, corresponding challenges are pointed out, and solutions or practical suggestions are proposed. The general organization of the book is as follows:

1. **An Introduction to the Internet of Everything** provides an introduction to the concept of Internet of Everything and focuses on some of the specific technological areas which fall under this wide category.
2. **Chapter 2: Towards an Integrated Internet of Things: Current Approaches and Challenges** introduces the main technologies currently available to define a machine readable and human comprehensible IoT API and points out the several challenges which will derive from an automatic analysis and description of IoT interfaces.
3. **Chapter 3: Energy Harvesting in Internet of Things** provides a comprehensive review of IoT devices, from their roles and responsibilities, to the challenges of operating them autonomously in heterogeneous environment
4. **Chapter 4: A Detailed Analysis of IoT Platform Architectures: Concepts, Similarities, and Differences** conducts a detailed analysis of several

state-of-the-art IoT platforms in order to foster the understanding of the underlying concepts, similarities, and differences between them.

5. **Chapter 5: Fog Computing: A Taxonomy, Survey and Future Directions** presents a taxonomy of Fog computing according to a set of identified challenges and its key features. Also, it maps the existing works to the taxonomy in order to identify current research gaps in the area of Fog computing.
6. **Chapter 6: Challenges and Opportunities in Designing Smart Spaces** takes a comprehensive look at the challenges in developing user-centric smart spaces for two different smart space scenarios: Smart Home and Smart Shopping.
7. **Chapter 7: SMART-FI: Exploiting Open IoT Data from Smart Cities in the Future Internet Society** introduces a novel Smart City platform being developed in the context of SMART-FI project, which aims to facilitate analyzing, deploying, managing, and interoperating Smart City data analytics services.
8. **Chapter 8: A Case for IoT Security Assurance** discusses and analyzes challenges in the design and development of assurance methods in IoT, focusing on traditional CIA properties, and provides a first process for the development of continuous assurance methods for IoT services.
9. **Chapter 9: Study on IP Protection Techniques for Integrated Circuit in IOT Environment** focuses on Intellectual Property (IP) protection and in particular how to hide secrets into IP circuit and authenticate IP via the secrets.
10. **Chapter 10: Cyber Defense Capabilities in Complex Networks** focuses on cyber security issues in networks and provides a study on a real scenario.

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