

Scalable Computing and Communications

Rajiv Ranjan · Karan Mitra
Prem Prakash Jayaraman · Lizhe Wang
Albert Y. Zomaya *Editors*

Handbook of Integration of Cloud Computing, Cyber Physical Systems and Internet of Things

 Springer

Scalable Computing and Communications

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Preface

We are witnessing tremendous growth in the areas of Internet of Things (IoT) and Cyber-Physical Systems (CPS). This growth can be mainly attributed to the rapid increase in the number of sensors and actuators connected to the Internet and supported by theoretical unlimited processing and storage capabilities provided by cloud computing.

We expect that within the next decade, billions of IoT devices will be connected to the Internet. These devices will produce massive amounts of data that can exhibit a range of characteristics, complexity, veracity, and volume. Therefore, for making efficient use of data from IoT devices, there is a need to leverage the opportunities provided by cloud computing.

IoT and CPS, combined with cloud computing, can lead to novel innovations and scientific breakthroughs. For example, sensor data generated from healthcare IoT devices from thousands of patients worldwide can be used to predict illnesses and diseases such as cancer. A CPS for emergency management can assist in the safe and timely evacuation of occupants in a building based on weather, ground, and location sensors.

The objective of this book is to explore, identify, and present emerging trends in IoT, CPS, and cloud computing and to serve as an authoritative reference in these areas. The primary target audience of this book are researchers, engineers, and IT professionals who work in the fields of distributed computing, artificial intelligence, and cyber-physical systems. This book, while also serving as a reference guide for postgraduate students undertaking studies in computer science, includes real-world use cases reporting experience and challenges in integrating the IoT, CPS, and cloud computing.

The chapters in this book are organized to facilitate gradual progression from basic concepts to advanced concepts with supporting case studies.

Newcastle Upon Tyne, UK
Skellefteå, Sweden
Melbourne, Australia
Wuhan, China
Sydney, Australia

Rajiv Ranjan
Karan Mitra
Prem Prakash Jayaraman
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