

# Preface

Predictive Computing term is tossed with the advancements in computing field and with the evolution of computing techniques like Cloud computing, Pervasive computing, Internet of Things, Big data, etc. Predictions from these computing techniques are based on explanatory models and a good predictive model can be turned into a machine further. Predictive modeling encompasses much more than the uncovering patterns within data. The aim of predictive computing is to develop a model in a way that can predict accurately.

An important challenge related to data is its security. It becomes more crucial when the data is stored in the cloud as it raises the issues of security, privacy and trust. These issues become more crucial when we integrate cloud computing with Internet of Things, wireless sensor networks and other computing technologies.

The major objective of this book 'Predictive Computing and Information Security' is to bring forward the advancement and implementation of state-of-art techniques and approaches, design, development and innovative use of technologies for enhancing predictive computing while taking care of information security. Various recent algorithms, implementation techniques, and prediction techniques are discussed in the book.

Chapter 1 discusses the detailed view of predictive computing and presents the definition of predictive computing. This chapter also presents the various pillars of predictive computing that helps in digging of stored information for making sector specific predictions. Chapter 2 presents the detailed technical survey related to predictive computing and information security. It focuses on various hot key areas, where predictive computing based techniques and frameworks are applied to enhance human living, and environment. Key areas included for predictive framework are healthcare, smart home, navigation, e-commerce, etc. where technologies like cloud computing and Internet of Things could be implemented.

Chapter 3 discusses the detailed technical insight of predictive computing and represents the design architecture of predictive computing that includes various steps for designing a predictive model. This chapter also discusses about various predictive computing algorithms which are used to make accurate and effective predictions. Chapter 4 represents the integration of Internet of Things and cloud computing paradigm and discusses about the Internet of Things based Cloud centric architecture which is used for predictive analysis of physical activities of the users in sustainable health centers. Chapter 5 represents the various major challenges associated with Internet of Things based predictive computing techniques. Chapter 6 discusses various issues related to cloud security, privacy and trust, and presents a detailed overview of cloud threats and attacks. It also discusses a framework that would provide integrity of data to multiple users through Third Party Auditor (TPA) and also an algorithm to implement this framework over different types of clouds and implements the cryptographic algorithms, namely; RSA, Bcrypt and AES. Finally, Chapter 7 represents the various applications of predictive computing related to smart mobility, e-health, and e-Logistics domains. Real life applications of Predictive Computing are discussed in the book that will help readers in understanding the basic concept of the predictive computing.

We believe this book will be of interest to graduate students, educators and active researchers in academia, and engineers in industry who need to understand or implement predictive computing and information security. We hope this book will provide reference to many of the techniques used in the field as well as generate new research ideas to further advance the field.

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