

About the Authors



Dr. Arun Kumar is a faculty member in the School of Computer Science and Engineering, Anna University, Chennai. He has over 11 years of teaching experience in the fields of Artificial Intelligence, Data Mining, Machine Learning, and Database Management Systems. He is currently working as an Assistant Professor in the School of Computer Science and Engineering, Anna University, Chennai. He is awarded PhD in the area of Data Mining from Anna University, Chennai. He has published over 10 research papers in international journals and conferences. He is a member of the IEEE, ACM, and IACIS. He is also a reviewer for several international journals and conferences.



Dr. Mahesh Kumar is a faculty member in the Department of Computer Science & Engineering at Sri Lanka College of Engineering & Technology, Trincomalee, Sri Lanka. He has over 10 years of teaching experience in the fields of Artificial Intelligence, Data Mining, Machine Learning, and Database Management Systems. He is currently working as an Assistant Professor in the Department of Computer Science & Engineering, Sri Lanka College of Engineering & Technology, Trincomalee, Sri Lanka. He is awarded PhD in the area of Data Mining from Anna University, Chennai. He has published over 10 research papers in international journals and conferences. He is a member of the IEEE, ACM, and IACIS. He is also a reviewer for several international journals and conferences.



Dr. Srinivas is a faculty member in the Department of Computer Science & Engineering at Sri Lanka College of Engineering & Technology, Trincomalee, Sri Lanka. He has over 10 years of teaching experience in the fields of Artificial Intelligence, Data Mining, Machine Learning, and Database Management Systems. He is currently working as an Assistant Professor in the Department of Computer Science & Engineering, Sri Lanka College of Engineering & Technology, Trincomalee, Sri Lanka. He is awarded PhD in the area of Data Mining from Anna University, Chennai. He has published over 10 research papers in international journals and conferences. He is a member of the IEEE, ACM, and IACIS. He is also a reviewer for several international journals and conferences.



Dr. Srinivas is a faculty member in the Department of Computer Science & Engineering at Sri Lanka College of Engineering & Technology, Trincomalee, Sri Lanka. He has over 10 years of teaching experience in the fields of Artificial Intelligence, Data Mining, Machine Learning, and Database Management Systems. He is currently working as an Assistant Professor in the Department of Computer Science & Engineering, Sri Lanka College of Engineering & Technology, Trincomalee, Sri Lanka. He is awarded PhD in the area of Data Mining from Anna University, Chennai. He has published over 10 research papers in international journals and conferences. He is a member of the IEEE, ACM, and IACIS. He is also a reviewer for several international journals and conferences.



RESEARCH AND INNOVATION IN ANNA UNIVERSITY



DATA SCIENCE AND BIG DATA ANALYTICS

Dr. P. Vinay Bhushan, Dr. Narasimha Chary Ch
Dr. Sunke Srinivas, Dr. Srihari Chintha



PRINCETON INSTITUTE OF MANAGEMENT
& TECHNOLOGY FOR WOMEN
Chowdary Nagar, Hyderabad (T)
Chaitanya Nagar, Hyderabad (T), TS-500082

INTER
AND
L

DATA SCIENCE AND BIG DATA ANALYTICS

DECCAN INTERNATIONAL ACADEMIC
PUBLISHERS

ISO 9001-2015 CERTIFIED

INDIA

1/179

2/179

Book Title	DATA SCIENCE AND BIG DATA ANALYTICS
Authors	Dr.P.Vinay Bhushan Dr.Narasimha Chary Ch Dr Sunke Srinivas Dr Srihari Chintha
Book Subject	DATA SCIENCE AND BIG DATA ANALYTICS
Book Category	Authors Volume
Copy Right	@ Authors
Edition	First Edition, September , 2022
Book Size	B5
Price	Rs.999/-

Published by
DECCAN INTERNATIONAL ACADEMIC PUBLISHERS
India

ISBN Supported by International ISBN Agency,
 United House, North Road, London, N7 9DP, UK. Tel. + 44 207 503 6418 &
 Raja Ram Mohan Roy National Agency for ISBN
 Government of India, Ministry of Human Resource Development,
 Department of Higher Education, New Delhi – 110066 (India)

ISBN: 978-93-95191-17-3



PREFACE

This book aims to provide a broad **DATA SCIENCE AND BIG DATA ANALYTICS** for the importance of **DATA SCIENCE AND BIG DATA ANALYTICS** is well known in various engineering fields.

It provides a logical method of explaining various complicated concepts and stepwise methods to explain essential topics. Each chapter is well supported with the necessary illustrations. All the chapters in the book are arranged in a proper sequence that permits each topic to build upon earlier studies.

DATA SCIENCE AND BIG DATA ANALYTICS is a critical research area. The techniques developed in this area so far require to be summarized appropriately. In this book, the fundamental theories of these techniques are introduced.

The brief content of this book is as follows-

- CHAPTER 1 INTRODUCTION TO DATA SCIENCE**
- CHAPTER 2 INTRODUCTION TO BIG DATA**
- CHAPTER 3 DATA COLLECTION AND DATA PRE-PROCESSING**
- CHAPTER 4 MODEL EVALUATION GENERALIZATION**
- CHAPTER 5 WORKING BIG DATA WITH HADOOP**
- CHAPTER 6 MAP REDUCE**
- CHAPTER 7 DATA SCIENCE APPLICATIONS AND CASE STUDIES**
- CHAPTER 8 BIG DATA ANALYTICS APPLICATIONS**

This book is original in style and method. No pains have been spared to make it as compact, perfect, and reliable as possible. Every attempt has been made to make the book a true one.

PREFACE

This book aims to provide a broad **DATA SCIENCE AND BIG DATA ANALYTICS** for the importance of **DATA SCIENCE AND BIG DATA ANALYTICS** is well known in various engineering fields.

It provides a logical method of explaining various complicated concepts and stepwise methods to explain essential topics. Each chapter is well supported with the necessary illustrations. All the chapters in the book are arranged in a proper sequence that permits each topic to build upon earlier studies.

DATA SCIENCE AND BIG DATA ANALYTICS is a critical research area. The techniques developed in this area so far require to be summarized appropriately. In this book, the fundamental theories of these techniques are introduced.

The brief content of this book is as follows-

CHAPTER 1 INTRODUCTION TO DATA SCIENCE

CHAPTER 2 INTRODUCTION TO BIG DATA

CHAPTER 3 DATA COLLECTION AND DATA PRE-PROCESSING

CHAPTER 4 MODEL EVALUATION GENERALIZATION

CHAPTER 5 WORKING BIG DATA WITH HADOOP

CHAPTER 6 MAP REDUCE

CHAPTER 7 DATA SCIENCE APPLICATIONS AND CASE STUDIES

CHAPTER 8 BIG DATA ANALYTICS APPLICATIONS

This book is original in style and method. No pains have been spared to make it as compact, perfect, and reliable as possible. Every attempt has been made to make the book a unique one.

5/179

In particular, this book can be handy for practitioners and engineers interested in this area. Hopefully, the chapters presented in this book have just done that.

6/179

ACKNOWLEDGMENTS

Take it from me, writing a book takes time, patience, and motivation in equal measures. The challenges can sometimes be overwhelming, and it becomes straightforward to lose focus. However, analytics, patterns, and uncovering the hidden meaning behind data have always attracted me. When one considers the possibilities offered by comprehensive analytics and the inclusion of what may seem to be unrelated databases, the effort involved seems almost inconsequential.

We also have to acknowledge many vendors in the Internet of Things arena who inadvertently are along my journey to expose the value contained in the data.

Writing takes a great deal of energy and can quickly consume all of