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IFIP is the global non-profit federation of societies of ICT professionals that aims at achieving a worldwide professional and socially responsible development and application of information and communication technologies.

IFIP is a non-profit-making organization, run almost solely by 2500 volunteers. It operates through a number of technical committees and working groups, which organize events and publications. IFIP's events range from large international open conferences to working conferences and local seminars.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is generally smaller and occasionally by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

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Aravindan Chandrabose ·
Ulrich Furbach · Ashish Ghosh ·
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Computational Intelligence in Data Science

Third IFIP TC 12 International Conference, ICCIDS 2020
Chennai, India, February 20–22, 2020
Revised Selected Papers

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ISSN 1868-4238

ISSN 1868-422X (electronic)

IFIP Advances in Information and Communication Technology

ISBN 978-3-030-63466-7

ISBN 978-3-030-63467-4 (eBook)

<https://doi.org/10.1007/978-3-030-63467-4>

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This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

We are excited to present the proceedings of the IFIP Third International Conference on Computational Intelligence in Data Science (ICCIDS 2020) which was held at Sri Sivasubramaniya Nadar College of Engineering (SSN), Chennai, India, during February 20–22, 2020. The conference was organized by the Department of Computer Science and Engineering and the Machine Learning Research Group (MLRG) of SSN. In particular, D. Thenmozhi, J. Bhuvana, and P. Mirunalini, meticulously worked on all the finer details towards the successful organization of this conference. The first two editions of ICCIDS were conducted during June 2017 and February 2019 at SSN.

The aim of this series of conferences is to provide an international platform to discuss, exchange, disseminate, and cross-fertilize the innovative ideas that solicit experimental, theoretical work, and methods in solving problems and applications of current issues of computational intelligence and data science. The enthusiastic response received for this third edition of the conference was overwhelming. The papers presented in the conference were across a spectrum of areas such as machine learning, deep learning, artificial intelligence, data analytics, text processing, image processing, and Internet of Things (IoT).

We reached out to more than 120 experts in the fields of computational intelligence and data science to review the papers received. Each submitted paper went through comprehensive reviews by at least three reviewers and their review comments were communicated to the authors before the conference. Out of 94 papers received through the EasyChair submission management system, only 31 papers were accepted. 27 papers were registered and presented by authors from India and abroad. All the presented papers were again reviewed by the session chairs and their comments were communicated to the authors for revising their work. The final submissions were checked by the Program Committee to ensure that all the comments had been addressed.

Two pre-conference workshops were scheduled on February 20, 2020, on the topics “Text analysis and Information Extraction & Retrieval — TIER 2020” and “Image and Video Analysis — IVA 2020.” TIER 2020 had 30 participants and the sessions were handled by Suriyadeepan and Kamal Raj of Saama Technologies, India. Demonstrations on GPU based computations for deep learning were held by Laxmi Nageswari, Global Lead, AI Education & Solutions, Boston Limited, India, and Krishna Mouli, Nvidia certified deep learning faculty, Boston Limited, India. Hands-on training on transformer models was given by D. Thenmozhi, B. Senthil Kumar, and S. Kayalvizhi of SSN. In IVA 2020, which had 27 participants, technical sessions were handled by T. T. Mirnalinee of SSN and Hemalatha of Madras Institute of Technology, Anna University, Chennai, India. Hands-on training on U-Net was given by P. Mirunalini and T. T. Mirnalinee of SSN.

The conference proceedings were inaugurated on February 21, 2020, with two keynote presentations: “Machine Learning and Big Data Analysis” by Ashish Ghosh of the Indian Statistical Institute, Kolkata, India, and “Industry 4.0 — AI, Robotics, and

Automation” by Prahlad Vadakkepat of the National University of Singapore, Singapore. Presentations of the accepted papers were organized as four tracks:

- Computational Intelligence for Text and Speech Analysis
- Computational Intelligence for Sensor and Other Data
- Computational Intelligence for Image and Video Analysis
- Data Science

Two parallel tracks, with seven presentations each, were scheduled on the first day of the conference. The sessions started with an invited talk on “Code Variants Retrieval” by Venkatesh Vinayak Rao of Chennai Mathematical Institute, Chennai, India.

The second day of the conference had two keynote talks, the first one on “The assessment of Information Credibility in the Social Web” by Gabriella Pasi, Professor, Department of Informatics, Systems, and Communication (DISCo), University of Milano-Bicocca, Italy, followed by a talk on “Transfer Learning for Natural Language Processing” by Anand Kumar M. of the National Institute of Technology, Suratkal, India. Raj Ramesh, Chief AI Officer, DataFoundry, USA, delivered an invited talk on “How Data Scientists can help the Business?” Two parallel tracks were scheduled on the second day of the conference, one with seven presentations and the other with six presentations.

This volume contains revised versions of 26 papers presented at the conference. We sincerely hope that these papers provide significant research contributions and advancements in the fields of computational intelligence and data science. We thank the International Federation of Information Processing (IFIP) for their support and encouragement, and Springer for publishing these proceedings.

We would like to thank and acknowledge the financial support provided by SSN, HCL, Boston, Frontier Systems, Tata Motors, CoMMNet, USAM, and Petrofac. We thank all the Program Committee members, reviewers, session chairs, Organizing Committee members, and the participants for their contributions towards the success of the conference.

July 2020

Aravindan Chandrabose
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