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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.

IFIP distinguishes three types of institutional membership: Country Representative Members, Members at Large, and Associate Members. The type of organization that can apply for membership is a wide variety and includes national or international societies of individual computer scientists/ICT professionals, associations or federations of such societies, government institutions/government related organizations, national or international research institutes or consortia, universities, academies of sciences, companies, national or international associations or federations of companies.

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Erich J. Neuhold · Xavier Fernando ·
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Computer, Communication, and Signal Processing


6th IFIP TC 5 International Conference, ICCCS 2022
Chennai, India, February 24–25, 2022
Revised Selected Papers


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ISSN 1868-4238 ISSN 1868-422X (electronic)
IFIP Advances in Information and Communication Technology
ISBN 978-3-031-11632-2 ISBN 978-3-031-11633-9 (eBook)
<https://doi.org/10.1007/978-3-031-11633-9>

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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

The Department of Information Technology is glad to present the proceedings of the IFIP 6th International Conference on Computer, Communication and Signal Processing (ICCCSP 2022) which was held at Sri Sivasubramaniya Nadar College of Engineering (SSN), Kalavakkam, India, during February 24–25, 2022. The conference was organized by the Department of Information Technology and was supported by the Machine Learning Research Group (MLRG) of SSN along with the Speech and Image Processing and Internet of Things (IoT) research groups of the department.

ICCCSP 2022 highlighted the rapidly developing technologies related to artificial intelligence (AI) and cyber security. The conference acted as a premier interdisciplinary platform for researchers, practitioners, and educators to present and discuss the most recent innovations, trends, concerns, and solutions adopted in these fields.

The conference received 111 paper submissions through the EasyChair conference management system from authors across India and various other countries, including the USA, Malaysia, Singapore, Dubai, Bangladesh, and Sri Lanka. With tremendous support from 100 experts in the fields of data science and cyber security the papers were scrutinized. Each submission was comprehensively reviewed by at least three reviewers, and their comments were communicated to the authors before the conference. The Program Committee accepted the top 25% of submissions, with contributions coming from globally recognized universities, such as the National University of Singapore, the University of Texas, and Oakland University, research labs at Accenture and Cognizant, national research labs such as the National Informatics Centre, India, and SAMEER-CEM, India, and other universities such as CEG and VIT. All 23 presented papers were again reviewed by the session chairs and their comments were communicated to the authors to allow for revisions prior to publication. The final submissions were checked by the Program Committee to ensure that all the comments had been addressed.

ICCCSP 2022 started with a series of three parallel workshops on February 23, 2022, on the topics of Text analysis and Information Extraction and Retrieval (TIER 2022), Microservices and Internet of Things (MIoT), and Trends in Deep Learning for Speech, Image, and Video Processing (SIVP). The workshops had international and national speakers from industry and academia to share their expertise with 120+ researchers and students across the country. TIER 2022 was the 6th workshop in this series conducted by the Machine Learning Research Group of SSN. It had 28 participants and the sessions were handled by M. Anand Kumar, NITK Suratkal, India, and Kamal Raj, Saama Technologies, India. A hands-on session on BERT models for Indian languages was delivered by D. Thenmozhi and B. Senthil Kumar of SSN. The MIoT workshop was conducted by the IoT research group of the Department of Information Technology, SSN, and had 28 participants. The sessions with demonstrations were presented by Sripaul C. Asokan, PayPal, USA, Nakeeran Annamalai, Chewy, Inc., USA, and R. Vinob Chander, SSN, India. The SIVP workshop was

supported by the Speech and Image Processing research group of the Department of Information Technology, SSN. The workshop had 74 active participants who were engaged by Ashwin Shanmugam, Mitsubishi Electric Research Laboratories, USA, V. Masilamani, IIIT DM Kancheepuram, India, and Subham Tiwari, Tech Mahindra, India.

The conference was inaugurated on February 24, 2022, amidst the presence of Kala Vijayakumar, President of SSN Institutions, Bhavani Thuraisingham from the University of Texas at Dallas, as the guest of honour, and V. E. Annamalai, Principal of SSN Institutions, along with the Head of the Department of Information Technology, faculty members, participants of the conference, research scholars, and students of SSN. This was followed by the keynote lecture of Bhavani Thuraisingham from the University of Texas at Dallas, USA, who addressed “Integrating Cyber Security and Data Science/Machine Learning with Applications in the Internet of Transportation and Healthcare”. The second keynote was delivered by Sethumadhavan from Amrita University, India, on “Crypto Vulnerabilities”. On February 25, 2022, the second day of conference, Naveena Yanamala, an Associate Professor at Rutgers University and Adjunct Professor at Carnegie Mellon University, USA, delivered her keynote lecture on “Mirroring AI for IA - Intellect Augmentation that Enhances Human Lives”.

The papers were presented under three tracks, namely, AI and ML, cyber security, and IoT. The sessions were chaired by eminent experts from NITK Surathkal, NIT Trichy, the cyber security industry, and Pondicherry Technological University, along with the domain experts from SSN research groups.

This volume is a collection of the 23 papers accepted for ICCOSP 2022 reflecting the revisions suggested during the presentation session. We hope that every research work showcases an insightful approach and solution for the problem discussed in the paper, amalgamating AI and cyber security. We sincerely thank the International Federation of Information Processing (IFIP) for accepting the conference proposal and supporting in various avenues. We extend our gratitude to Springer for publishing the proceedings and presenting these papers to the global research community.

We take this opportunity to thank and acknowledge the financial support provided by SSN Institutions. We also extend our appreciation to all the Program Committee members, reviewers, session chairs, Organizing Committee members, and the participants for their contributions towards the success of the conference.

June 2022

Aravindan Chandrabose
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