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Computational Intelligence in Data Science

5th IFIP TC 12 International Conference, ICCIDS 2022
Virtual Event, March 24–26, 2022
Revised Selected Papers

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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.

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Preface

The Department of Computer Science and Engineering at Sri Sivasubramaniya Nadar College of Engineering, Kalavakkam, Chennai, India, proudly hosted the 5th International Conference on Computational Intelligence in Data Science (ICCIDS 2022), as a virtual event during March 24–26, 2022.

The building blocks of computational intelligence involve computational modeling, natural intelligent systems, multi-agent systems, hybrid intelligent systems, etc. The topics covered by this conference include computational intelligence in machine learning, deep learning, the Internet of Things (IoT), and cyber security. All intelligence-based algorithms require data as a fundamental building block, and cyber security systems act as information gatekeepers, protecting networks and the data stored on them. With machine learning, cyber security systems can analyze patterns and learn from them to help in preventing similar attacks and respond to changing behavior. IoT and machine learning deliver insights hidden in data for rapid automated responses and improved decision making. Machine learning for IoT can be used to project future trends, detect anomalies, and augment intelligence by ingesting images, video, and audio.

This year's conference program included two pre-conference workshops with three sessions each followed by prominent keynote talks and paper presentations. The two workshops, "Image and Video Analysis" and "Data Science – CAPSTONE" were conducted in parallel on March 24, 2022. The conference provided an opportunity for students, researchers, engineers, developers, and practitioners from academia and industry to discuss and address the research and methods in solving problems related to data science and to share their experience and exchange their ideas in the field of data science and computational intelligence.

On the first day of the conference, speakers from Niramai Health Analytix, VIT, and SSN Institutions elaborated on the topics of "Medical Image Processing" and "Artificial Intelligence for Medical Imaging". Mohit Sharma, Data Scientist at Ericsson, Bangalore, India elaborated on the topic of "Data Science – CAPSTONE during the pre-conference workshop.

To enlighten our participants, five keynote talks were arranged for the second and third day. On the second day, three keynote talks on "Data Science and its applications", by Dileep A.D, Associate Professor, IIT Mandi, India, "What AI for Global Security?", by Eunika Mercier-Laurent, Chair IFIP TC12 (AI) and University of Reims Champagne-Ardenne France, and Dominique Verdejo, Chair IFIP WG12.13, France, and "Research Trends in Computer Vision" by Sunando Sengupta, Senior Researcher, Microsoft, UK, were delivered.

On the third day of the conference, two keynote talks on "From Features to Embeddings - Unified view of ML Pipelines for Text, Audio and Image Understanding", by Vinod Pathangay, Distinguished Member of Technical Staff - Senior Member, Wipro, India, and "Honeybee Democracy - Towards Collective Intelligence" by

Mieczyslaw L. Owoc, Professor Emeritus, Department of Business Intelligence in Management, Wroclaw University of Economics and Business, Wrocław, Poland, were delivered.

The conference received a total of 96 submissions from authors all over India and abroad, out of which 28 papers (an acceptance rate of 29%) were selected by the Program Committee after a careful and thorough review process. The papers were distributed across three paper presentation panels based on their domain. Each panel had a session coordinator and three session chairs (subject experts) to evaluate the research work. Based on the evaluation, one paper from each panel was declared as the best paper.

We would like to express our sincere thanks to IFIP and the Sri Sivasubramaniya Nadar College of Engineering for helping us in organizing this event. Special thanks go to Eunika Mercier-Laurent, University of Reims Champagne-Ardenne, France, for approving our conference from IFIP and Springer for accepting to publish the conference proceedings. We thank the authors for sharing their research and reviewers for their constructive suggestions.

March 2022

Lekshmi Kalinathan
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