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Preface

It is with immense pleasure that we present the proceedings of the Fifth International Conference on Computational Intelligence in Communications and Business Analytics (CICBA 2023), organized by the Department of Computer Science & Engineering at Kalyani Government Engineering College, Kalyani, during January 27–28, 2023. CICBA has evolved into a flagship event at the intersection of computational intelligence, communications, and business analytics, fostering international collaboration and the dissemination of cutting-edge research.

CICBA 2023 welcomed distinguished keynote speakers, each a luminary in their field. We were honoured to have with us Bhabatosh Chanda from the Indian Statistical Institute, Kolkata, Amit Konar from Jadavpur University, Kalyanmoy Deb from Michigan State University, Hisao Ishibuchi from the Southern University of Science and Technology, China, Jayant Haritsa from IISc Bangalore, Narayan C. Debnath from Eastern International University, Vietnam, Celia Shahnaz from Bangladesh University of Engineering and Technology, Hiroyuki Sato from The University of Electro-Communications, Japan, Debashis De from Maulana Abul Kalam Azad University of Technology, West Bengal, India, and Mohd Helmy Bin Abd Wahab from University Tun Hussein Onn Malaysia, Malaysia.

In technical collaboration with IEEE CIS Kolkata, IEEE Kolkata Section, and IETE Kolkata, CICBA 2023 garnered substantial interest from the global research community. Springer CCIS Series was our esteemed publication partner, ensuring the high quality and widespread dissemination of the conference proceedings.

We are pleased to present the submission statistics for CICBA 2023. We received 187 initial submissions, which is evidence of our conference's growing significance. 52 papers were approved and registered, representing an impressive acceptance rate of 27%.

The conference proceedings are organized into two volumes, each featuring distinct tracks. In Volume 1, you will find 26 insightful papers in the "Computational Intelligence" track. Volume 2 is divided into two tracks: "Theories and Applications to Data Communications" with 17 papers, and "Theories and Applications to Data Analytics" with 9 papers. These contributions represent the cutting edge of research in computational intelligence and business analytics and cover a wide range of topics.

As we reflect on the history of CICBA since its inception in 2017, we are pleased with its growth and impact. This conference series has consistently attracted high-quality research from around the world. We are grateful for the contributions of our esteemed keynote speakers, organizing committees, and evaluators, who have made CICBA a remarkable venue for the exchange of knowledge.

We sincerely thank all the authors who submitted their work, the reviewers who diligently evaluated the submissions, and the participants who contributed to vibrant discussions during the conference. Your collective efforts have enriched the academic discourse in computational intelligence, communications, and business analytics.

We hope you find these proceedings enlightening and inspiring, and that they serve as a valuable resource for researchers and practitioners in the field. We look forward to future editions of CICBA, which we are committed to making even more intellectually stimulating and professionally rewarding.

Sincerely,

Kousik Dasgupta
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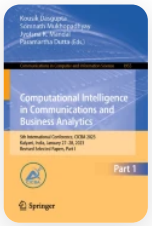

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(CICBA 2023)

Rana Pratap Mukherjee, Rajesh Kumar Chatterjee & Falguni Chakraborty

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Abstract

The use of AI is becoming increasingly widespread in medical diagnosis. Recently, many decision-making systems have used the Artificial Neural Networks (ANN) model to train the ANN's weight and biases to get the lowest error function and highest accuracy. In this concern meta-heuristic based optimization technique play an important role. Already various optimization techniques have been applied to train an ANN's weight and bias. But due to improper balancing between exploration and exploitation they fail to give the global optima. To overcome this issues, this study used a new stochastic-based optimization algorithm the Sine Cosine Algorithm (SCA). The mathematical formulation of SCA is based on trigonometric functions, sine and cosine. However, sometimes slow convergence is the main disadvantage of the basic SCA algorithm. This paper proposes a modified SCA optimization technique called Chaotic SCA(CSCA) to train the control parameters like weights and biases of a single-layer ANN by integrating chaotic into SCA to expedite the convergence speed. The performance of the above algorithm is examined and verified using The Pima Indian data set. The experiment revealed the outperformance of CSCA than the other algorithms.

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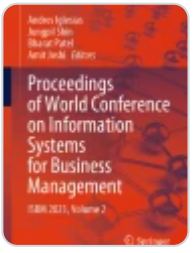

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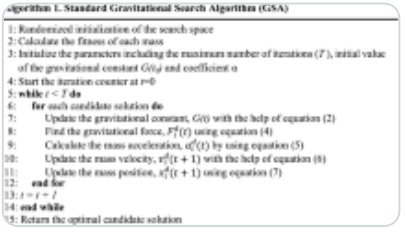

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