IEEE WCCI 2024 Yokohama Japan

IEEE World Congress on Computational Intelligence
June 30 – July 5, 2024

CALL FOR PAPERS - CEC 2024 - SPECIAL SESSION

IMPORTANT DATES

29 January 2024
Paper Submission Deadline

15 March 2024
Paper Acceptance Notification

1 May 2024
Final Paper Submission & Early Registration Deadline

30 June - 5 July 2024
IEEE WCCI 2024
Yokohama, Japan

Further information:
hyper-heuristics.com/events/autocis/

Automating Computational Intelligence Systems (AutoCIS): Trends, Challenges, and Future Directions

SUMMARY

This Special Session at WCCI-CEC 2024 will focus on the emerging trends and challenges in automating computational intelligence systems, a field crucial for solving complex problems across various industries, including data mining, transportation, health systems, and robotics. Computational intelligence systems, employing techniques like neural networks, fuzzy logic, genetic algorithms, and multi-agent approaches, require intricate design decisions and expert knowledge, making their development time-intensive.

A significant focus of our session will be on the advancements in Auto-Machine Learning and Neuroevolution, aimed at automating the design of machine learning algorithms and neural network architectures, respectively. We will delve into the evolving field of Hyper-Heuristics, initially developed for combinatorial optimization problems, and its effectiveness in automating metaheuristic techniques.

The session will address how these automated systems, primarily using evolutionary algorithms such as genetic programming, are evolving to tackle complex real-world applications. Key topics include exploring transfer learning, explainable artificial intelligence, and integrating different computational techniques. We aim to explore how these initiatives move beyond benchmark problems to address practical engineering challenges and real-world scenarios.

Our goal is to provide a platform for discussing recent developments in automated algorithm design, examining both the theoretical frameworks and practical applications. This session will serve as a forum for researchers and practitioners to share insights, discuss challenges, and explore future directions in the automation of computational intelligence systems.

CALL FOR PAPERS

The topics of this special session include but are not limited to the following topics:

Automated Hybridization of Intelligent Techniques • Towards a Theoretical and Software Framework for Automatic Evolutionary Algorithm Design • Automatic System Development Using Hyper-Heuristics • Genetic Programming in Automatic Evolutionary Algorithm Design • AutoML in Automatic Evolutionary Algorithm Design • Evolutionary Algorithms for Tailoring and Tuning Automatic Algorithm Design Strategies • Neuroevolution and Transfer Learning in Automatic Evolutionary Algorithm Design • Reinforcement Learning in Automatic Evolutionary Algorithm Design • Applications of Automatic Design Systems in Real-World Scenarios • Hyper-Heuristics for Metaheuristic Composition Optimization Problems

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