

CALL FOR PAPERS

Workshop on Granular-ball Computing in

The 2025 International Joint Conference on Rough Sets

May 11-13, 2025, Chongqing, China

INTRODUCTION

Human cognition has a "large-scale first" cognitive mechanism, which processes information input based on coarse-grained information and therefore possesses adaptive multi-granularity description capabilities. This results in computational characteristics such as efficiency, robustness, and interpretability. Although most existing artificial intelligence learning methods have certain multi-granularity features, they do not fully align with the "large-scale first" cognitive mechanism. For instance, classifiers are based on the finest granularity "point" input; existing image recognition neural networks mainly analyze input based on pixel points; most clustering algorithms for non-convex data require calculating the mutual relationship between any two points at the finest granularity to construct adjacency matrices, etc. Multi-granularity granular-ball computing is an important model method developed in the field of granular computing in recent years. This method can use granular-balls of different sizes to adaptively represent and cover the sample space, and perform learning based on granular-balls instead of points in traditional AI methods. Since the number of coarse-grained granular-balls is smaller than the number of sample points, then granular-ball computing is more efficient; the coarse-grained characteristics of granular-balls are less likely to be affected by fine-grained sample points, making them more robust; the multi-granularity structure of granular-balls can produce topological structures and coarse-grained descriptions, providing natural interpretability. Overall, granular-ball computing is a rare and innovative theoretical approach in artificial intelligence that can adaptively and simultaneously enhance efficiency, robustness, and interpretability. It has good innovation, practicality, and development potential.

TOPICS

We hope to inspire scholars to discuss in depth the latest trends and developments in granular-ball computing. We warmly invite you to submit and present original and unpublished research work to apply granular-ball computing in various directions. The topics we are interested in include but are not limited to:

- Granular-ball rough set
- Granular-ball fuzzy set
- Granular-ball three-way decision
- Granular-ball computing in classification
- Granular-ball clustering
- Granular-ball reinforcement learning
- Granular-ball open continual learning
- Granular-ball natural language processing
- Granular-ball neural network
- Granular-ball evolutionary computing

- Granular-ball cloud model

PAPER SUBMISSION

Proceeding approval is pending. Manuscripts are to be submitted in similar formats to previous proceedings at the following link <https://link.springer.com/conference/ijcrs>

IMPORTANT DATES

Deadline for paper submission: January 5, 2025

Notification of acceptance for paper: March 20, 2025

Deadline for camera-ready version of accepted paper: April 6, 2025

Conference: May 11-13, 2025

WORKSHOP CHAIRS

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