

# Call For Papers

## Workshop on Three-Way Decision in Advancing Machine and Human Intelligence

The 11th International Workshop on Three-Way Decision  
in  
The 2025 International Joint Conference on Rough Sets (IJCRS 2025)  
Chongqing, China

### INTRODUCTION

The theory of three-way decision (3WD), proposed by Professor Yiyu Yao in the early 2010s, is an effective tool for intelligent decision-making. Over more than a decade of development, 3WD has proven its effectiveness and gained widespread recognition. In a broad sense, 3WD embodies “a philosophy of thinking in threes, a methodology of working with threes, and a mechanism of processing through threes.” In more specific applications, 3WD has been successfully implemented in various areas to enhance machine and human intelligence, such as classification, clustering, feature selection, concept analysis, conflict analysis, and cognitive learning. Recently, Professor Yiyu Yao has advanced the field by presenting the Symbols-Meaning-Value (SMV) space, highlighting the potential of triadic structures in fostering human-machine co-intelligence. These advancements have opened up new avenues for research and identified opportunities to extend 3WD in creating an integrated environment for collaborative intelligence between machines and humans. By leveraging the strengths of 3WD, researchers can develop innovative solutions that enhance both machine and human decision-making capabilities. This workshop aims to attract pioneering research in three-way decision, focusing on advancing machine intelligence, human intelligence, and their co-intelligence. We invite contributions that explore theoretical advancements and practical implementations of 3WD to address complex problems and drive forward the frontier of intelligent systems.

### TOPICS

We invite submissions of original and previously unpublished research on three-way decision, including but not limited to the following topics:

- Three-way reasoning, thinking in threes, trilevel thinking, triadic thinking
- Methodology of three-way decision, tripartite methods, three-way learning
- Three-way decision for explainable artificial intelligence
- Three-way decision and granular computing
- Three-way decision and rough sets
- Three-way decision and fuzzy sets
- Three-way classification
- Three-way clustering
- Three-way conflict analysis
- Three-way formal concept analysis
- Three-way recommendation

- Three-way dynamic learning, incremental learning, and dynamic modeling
- Three-way decision in deep learning and three-way decision in machine learning
- Three-way decision in analyzing incomplete data
- Three-way decision in big data analysis and data mining
- Three-way multi-label learning and label distribution learning
- Three-way ensemble learning
- Three-way group decision making
- Three-way decision in multi-criteria decision making
- Three-way decision in bioinformatics
- Sequential three-way decision and applications
- Movement-based three-way decision
- Three-way decision for network group of forecasts
- Three-way decision with interval sets and orthopairs
- Visual three-way computing and three-way visual computing
- Three-way quotient space analysis
- Uncertainty reasoning and three-way decision
- Three-way stream computing and concept drift
- Multi-scale three-way decision
- Double-quantitative three-way decision
- Multi-granulation three-way decision
- Fuzzy three-way decision and three-way fuzzy decision
- Three-way decision in management science
- Three-way decision in smart agriculture
- Three-way decision in information security and privacy protection

## **WORKSHOP HISTORY**

The First International Symposium on Three-Way Decisions and Granular Computing (ISTDGC 2013) was held at Chengdu, China, in 2013. The Second International Workshop on Three-Way Decisions, Uncertainty, and Granular Computing (TWDUG 2014) took place at Shanghai, China, in 2014. The subsequent international workshops on three-way decision were held at Tianjin, China, in 2015; Santiago, Chile, in 2016; Olsztyn, Poland, in 2017; Quy Nhon, Vietnam, in 2018; Debrecen, Hungary, in 2019; Havana, Cuba, in 2020; Suzhou, China, in 2022; and Halifax, Canada, in 2024.

## **PAPER SUBMISSION**

Please follow the paper submission guidelines of IJCRS 2025.

## IMPORTANT DATES

Please follow the timeline of IJCRS 2025.

## WORKSHOP CHAIRS

Dr. Mengjun Hu (Saint Mary's University, Canada)

Dr. Guangming Lang (Changsha University of Science and Technology, China)

Dr. Aleksandra Szpakowska (University of Warmia and Mazury in Olsztyn, Poland)

## CONTACT INFORMATION

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