CALL FOR PAPERS

The Tenth International Workshop on Three-Way Decision (TWD 2024)
Theme: Uncertainty, Three-Way Decision, and Explainable Artificial Intelligence

in

The 2024 International Joint Conference on Rough Sets
May 17-20, 2024, Halifax, Canada

INTRODUCTION

The interpretability of any intelligent systems is particularly relevant and important when dealing with human-centric tasks, such as in medical sciences, cognitive science, business and management sciences, social sciences, agricultural sciences, and everyday decision. Uncertain information is critical for data mining and knowledge discovery in these scenarios. The analysis results from uncertain information and their obtaining process need reasonable interpretations to be convincing and valuable. The theory of three-way decision, introduced by Professor Yiyu Yao, is an emerging scientific field of study on thinking in threes, problem solving in threes, and computing in threes. It provides a unified multi-disciplinary framework to study fundamental concepts, approaches, and applications of decision-making with three elements. The philosophy and principles of three-way decision are useful in guiding the construction of explainable description from three levels of granularity, in triple perspectives, and for triple purposes. Combined with granular computing, multi-level computing, multi-view computing, and related techniques, three-way computing advances explainable artificial intelligence through effective representation, reasoning, measurement, and utilization of uncertain information. Three-way decision has been successfully exploited in the areas of rough sets, uncertain reasoning, granular computing, risk decision analysis, dynamic data analysis, data science, explainable artificial intelligence, and many others.

TOPICS

We would like to stimulate an intensive discussion on the state-of-the-art trends and developments of theories of uncertainty, three-way decision, and explainable artificial intelligence. We warmly invite you to submit and present original and unpublished research work, to evaluate future directions of uncertainty in three-way decision, the application of three-way decision, and the explainable artificial intelligence. Topics of interest include, but are not limited to:

- 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
- Visual three-way computing and three-way visual computing
- Three-way classification, three-way cluster analysis
- Three-way formal concept analysis
- Three-way quotient space analysis
- Uncertainty measurement and reasoning and three-way decision under uncertainty
- Three-way stream computing and concept drift
- Three-way dynamic learning, incremental learning and dynamic modeling
- Sequential three-way decision and the application
- Multi-scale three-way decision
- Double-quantitative three-way decision
- Multi-granulation three-way decision
- Bayesian rough set theory and cost-sensitive three-way decision
- Fuzzy three-way decision and three-way fuzzy decision
- Three-way decision in system engineering and management science
- Three-way decision in deep learning and three-way decision in machine learning

- Three-way decision in bioinformatics
- Three-way decision in smart agriculture
- Three-way decision in information security and privacy protection
- Three-way multi-label learning and label distribution learning
- Three-way ensemble learning
- Three-way decision in analyzing incomplete data
- Three-way decision in big data analysis and data mining
- Three-way group decision making
- Three-way decision for network group of forecasts
- Three-way for feature selection
- Three-way decision with interval sets

WORKSHOP HISTORY

Annual workshops on three-way decision and granular computing were successfully held in different cities around the world. The First International Symposium on Three-way Decisions and Granular Computing (ISTDGC 2013) was held in Chengdu, China in 2013. The Second International Workshop on Three-Way Decisions, Uncertainty, and Granular Computing (TWDUG 2014) was held in Shanghai, China in 2014. Subsequent workshops were held at International Joint Conference on Rough Sets:

Year	Workshop	City	Year	Workshop	City
2013	ISTDGC 2013	Chengdu, China	2018	TWDUG 2018	Quy Nhon, Vietnam
2014	TWDUG 2014	Shanghai, China	2019	TWDUG 2019	Debrecen, Hungary
2015	TWDUG 2015	Tianjin, China	2020	TWDUG 2020	Havana, Cuba
2016	TWDUG 2016	Santiago de Chile	2022	TWDUG 2022	Suzhou, China
2017	TWDUG 2017	Olsztyn, Poland			

This workshop will be the tenth workshop in the series and will be held at the 2024 International Joint Conference on Rough Sets in **Halifax, Canada**.

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: February 10, 2024, Notification of acceptance for paper: April 10, 2024, Deadline for camera-ready version of accepted paper: May 3, 2024.

WORKSHOP HONORARY CHAIR:

Duoqian Miao, miaoduoqian@163.com, Tongji University, China

WORKSHOP CHAIRS:

Jianfeng Xu, jianfeng_x@ncu.edu.cn, Nanchang University, China
Chuanlei Zhang, 97313114@tust.edu.cn, Tianjin University of Science and Technology, China
Ying Yu, yuyingjx@163.com, East China Jiaotong University, China

CONTACT INFORMATION:

Professor Jianfeng Xu, E-mail:jianfeng_x@ncu.edu.cn