

IJCRS 2024 Conference Program

Friday, May 17 Rough Set School and Tutorials

Meeting information for remote participation: TBA

8:00 – 9:00 Break (snack, beverages provided)

Location: MCDA suite (S126)

9:00 – 10:30 Part 1

- Rough sets: History and what next
By Dr. Andrzej Skowron, Dr. Dominik Ślęzak
- Fuzzy orthopartitions as models dealing with vague and uncertain information
By Dr. Stefania Boffa

Chairs: Dr. Dominik Ślęzak, Dr. Zaineb Chelly Dagdia

Location: MCDA suite (S126)

10:30 – 11:00 Break (snack, beverages provided)

11:00 – 12:30 Part 2

- Near sets with application on Hilbert envelope proximities in modulated irregular motion waveforms in infrared video frames
By Dr. James Peters
- The art, science, and application of three-way decision
By Dr. Yiyu Yao

Chairs: Dr. Dominik Ślęzak, Dr. Piotr Artiemjew

Location: MCDA suite (S126)

12:30 – 13:30 Break for lunch (lunch not provided)

13:30 – 15:00 Part 3

- Rough set theory in AI and data science
By Dr. Usman Qamar
- QMAK (open platform for interaction with machine learning models and visualization of classification processes)
By Dr. Arkadiusz Wojna

Chairs: Dr. Aleksandra Szpakowska, Dr. Piotr Artiemjew

Location: MCDA suite (S126)

Saturday, May 18

Meeting information for remote participation: TBA

8:00 – 12:00

Registration

Location: MCDA suite (S126)

8:00 – 9:00

Break (snack, beverages, coffee provided)

Location: MCDA suite (S126)

9:00 – 10:15

Data Mining Competition Presentation

Chair: Dr. Yasushi Akiyama

Location: MCDA suite (S126)

10:15 – 10:30

Break (snack, beverages provided)

Location: MCDA suite (S126)

10:30 - 11:15

IRSS President Forum Talk

Speaker: Dr. Duoqian Miao

Chair: Dr. JingTao Yao

Location: MCDA suite (S126)

11:30 – 13:00

Session 1A

Workshop – Three-Way Decision
(Part 1/3)

Location: MCDA suite (S126)

Session 1B

Main Track – Granular Computing

Location: AT101

13:00 – 14:00

Lunch and Data Mining Competition Award Announcement

Location: TBA

14:00 – 15:30

IRSS President Forum Talk

Speakers: Dr. Shusaku Tsumoto, Dr. Wojciech Ziarko

Chair: TBA

Location: MCDA suite (S126)

15:30 – 15:40

Break (snack, beverages, coffee provided)

Location: MCDA suite (S126)

15:40 – 17:40

Session 2A

Workshop – Three-Way Decision
(Part 2/3)

Location: MCDA suite (S126)

Session 2B

Main Track - Rule Induction and Machine Learning
(Part 1/2)

Location: AT101

18:30 -

Dinner - Reception

Location: TBA

Sunday, May 19

Meeting information for remote participation: TBA

8:00 – 12:00

Registration

Location: MCDA suite (S126)

8:00 – 9:00

Break (snack, beverages, coffee provided)

Location: MCDA suite (S126)

9:00 – 10:30

Keynote Talk

Speakers: Dr. Jaroslaw Was, Dr. Ryszard Janicki

Chair: Dr. Dominik Ślęzak

Location: MCDA suite (S126)

10:30 – 12:30

Session 3A

Workshop – Three-Way Decision
(Part 3/3)

Location: MCDA suite (S126)

Session 3B

Main Track - Rule Induction and Machine Learning
(Part 2/2)

Location: AT101

12:30 – 13:30

Lunch and IRSS Meeting

Location: TBA

13:30 – 15:00

Keynote Talk

Speakers: Dr. Lipika Dey, Dr. Jesus Medina

Chair: Dr. JingTao Yao

Location: MCDA suite (S126)

15:00 – 15:30

Break (snack, beverages, coffee provided)

Location: MCDA suite (S126)

15:30 – 18:00

Session 4A

Workshop - Deep Learning and
Soft Computing

Location: MCDA suite (S126)

Session 4B

Special Session – AI and Machine Learning

Location: AT101

18:30 -

Dinner - Banquette

Location: TBA

Monday, May 20

Meeting information for remote participation: TBA

8:00 – 12:00

Registration

Location: MCDA suite (S126)

8:00 – 9:00

Break (snack, beverages, coffee provided)

Location: MCDA suite (S126)

9:00 – 10:30

Keynote Talk

Speakers: Dr. Jimmy Huang, Dr. Eric Matson

Chair: TBA

Location: MCDA suite (S126)

10:30 – 12:30

Session 5

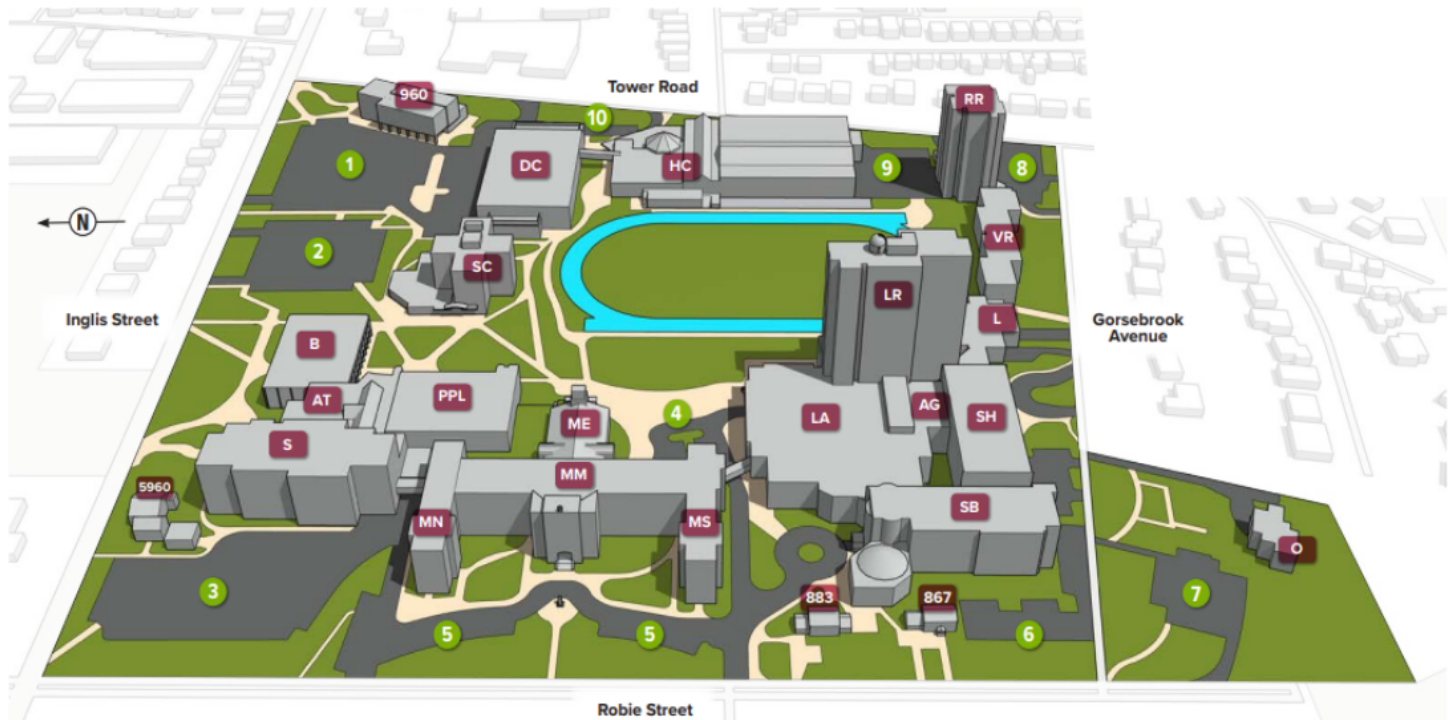
Main Track – Applications

Location: MCDA suite (S126)

12:30 -

Activities TBA

Saint Mary's University Campus Map



Buildings

AG	Art Gallery	O	The Oaks
AT	Atrium	PPL	Patrick Power Library
B	Burke Building	RR	Rice Residence
DC	The Dauphinee Centre	S	Science Building
HC	Homburg Centre for Health & Wellness	SB	Sobey Building
L	Link Building	SC	O'Donnell Hennessey Student Centre
LA	Loyola Academic Complex	SH	Sobeys Inspiration Hub
LR	Loyola Residence	VR	Vanier Residence
ME	McNally East	867	867 Robie Street
MM	McNally Main	883	883 Robie Street
MN	McNally North	960	960 Tower Road
MS	McNally South	5960	5960 Inglis Street

Parking

- 1.** Arena: General, Meters, Accessible
- 2.** Inglis Street: General, Pay & Display
- 3.** Science: General, Meters, Faculty, Accessible
- 4.** McNally East: Meters, Accessible
- 5.** McNally Main: Faculty, Accessible
- 6.** Sobey/Gorsebrook: General, Faculty, Accessible
- 7.** Oaks: General
- 8.** Rice: General, Meters, Accessible
- 9.** Homburg Members Parking Only
- 10.** Tower Road: Meters, Accessible

Session 1A: Saturday, May 18, 11:00-12:30

Workshop on Uncertainty, Three-way Decision, and Explainable Artificial Intelligence (Part 1/3)

Chair: Dr. Mengjun Hu

Location: MCDA suite (S126)

Link: TBA

Uncertainty Strategy for Satellite Video Object Tracking via Correlation Filter

Ziye Wang, Duoqian Miao

Result-fusion-based Temporal-spatial Composite Sequential Three-way Decisions

Yi Xu, Qisheng Zhu, Zhengyue Pan, Ziheng Qiu, Xiaojun Sun

Suggestions on the Use of Three-way Decision in Machine Learning

Federico Cabitza, Andrea Campagner, Davide Ciucci

Sequential Three-way Detection Method of Hybrid Concept Drift

Ruihua Wang, Jianfeng Xu, Hong Rao

Session 1B: Saturday, May 18, 11:00-12:30

Main Track – Granular Computing

Chair: Dr. Ryszard Janicki

Location: AT101

Link: TBA

Information System in the Light of Interactive Granular Computing

Soma Dutta, Andrzej Skowron

A Vector Is a Granule: A Novel Extension of the Variable Precision Rough Set Model

Hajime Okawa, Yasuo Kudo, Tetsuya Murai

GBTWSVM: Granular-ball Twin Support Vector Machine

Lixi Zhao, Guangming Lang

Fuzzy Granular-balls based Spectral Clustering

Yueyang Li, Guangming Lang

Session 2A: Saturday, May 18, 15:30-17:30 Workshop on Uncertainty, Three-way Decision, and Explainable Artificial Intelligence (Part 2/3) Chair: Dr. Mengjun Hu Location: MCDA suite (S126) Link: TBA
Approximate Criterion Reduction in Multi-Criteria Trilevel Ranking Analysis Chengjun Shi, Mengjun Hu, Qiaoyi Li, Yiyu Yao
Three-way Hybrid Sampling using Granular Balls for Imbalanced Classification Qin Xie, Qinghua Zhang, Nanfang Luo, Guoyin Wang
Three-way Bibliometrics Analytics for Supporting Literature Review Langwangqing Suo, Hai-Long Yang, Yiyu Yao
Identifying Important Concepts in the Concept Lattice based on Concept Indices and Complex Network Analysis Kuo Pang, Zhen Wang, Li Zou, Mingyu Lu
A Machine-People-Government Triangular Model of Smart Agriculture Chuanlei Zhang, Yiyu Yao
Three-way Decision of Granular-ball Rough Sets based on Fuzziness Zhuangzhuang Liu, Taihua Xu, Jie Yang

Session 2B: Saturday, May 18, 15:30-17:30 Main Track – Rule Induction and Machine Learning (Part 1/2) Chair: Dr. Ryszard Janicki Location: AT101 Link: TBA
Greedy Algorithm for Construction of Deterministic Decision Trees for Conventional Decision Tables from Closed Classes Azimkhon Ostonov, Mikhail Moshkov
Consideration of Detecting Data and Functional Dependency in Tabular Data with Missing Values by the Obtained Rules Hiroshi Sakai, Michinori Nakata, Dominik Ślęzak, Junzo Watada
Dealing with Missing Values Meaning Unknown in Probabilistic Approximations Michinori Nakata, Hiroshi Sakai, Takeshi Fujiwara
Attribute Ranking Method Based on Conditional Comparison Matrices Bich Khue Vo, Hung Son Nguyen
RIONIDA: A Novel Algorithm for Imbalanced Data Combining Instance-Based Learning and Rule Induction Grzegorz Góra, Andrzej Skowron
Simulating Functioning of Decision Trees for Tasks on Decision Rule Systems Kerven Durdymyradov, Mikhail Moshkov

Session 3A: Sunday, May 19, 10:30-12:30

Workshop on Uncertainty, Three-way Decision, and Explainable Artificial Intelligence (Part 3/3)

Chair: Dr. Yiyu Yao

Location: MCDA suite (S126)

Link: TBA

Three-way Cost-Performance Approximate Attribute Reduction

Jialin Hou, Yiyu Yao

The Visual Analysis of Three-way Decision based on Decision-theoretic Rough Set: A Perspective of Fusing Two-way Decision Pair

Jing Tu, Hong Rao, Jianfeng Xu, Duoqian Miao, Yuanjian Zhang

Granular Approximations of Partially-Known Concepts

Qiaoyi Li, Chengjun Shi, Han Yang, Yiyu Yao

Triangular Fuzzy Number Intuitionistic Fuzzy Covering Rough Sets and Applications to Decision Making

Zhongling Bai, Jiang Chen, Xianyong Zhang

Three-way Conflict Analysis with Negative Feedback

Yucong Yan, Xiaonan Li

A New Three-way Conflict Analysis Model Based on Decision-Theoretic Rough Set Theory

Ping Liu, Guangming Lang

Session 3B: Sunday, May 19, 10:30-12:30

Main Track – Rule Induction and Machine Learning (Part 2/2)

Chair: Dr. Chris Cornelis

Location: AT101

Link: TBA

Interfacing with a Machine Learning Framework to Detect Drug-Related Harms on Social Media

Andrew Fisher, Vijay Mago

Privacy-Preserving Federated Learning: Insights and Perspectives

Ankit Chouhan, Jingtao Yao

On Complexity of Deterministic and Nondeterministic Decision Trees for Decision Tables with Many-valued Decisions from Closed Classes

Azimkhon Ostonov, Mikhail Moshkov

Distance-Based Fuzzy-Rough Sets & Their Application To The Classification Problem

Amrit Kumar, Niladri Chatterjee

Study of Dependency Degree and Bayesian Networks for Conflict Scenarios

Małgorzata Przybyła-Kasperek, Rafal Deja

Interactive Machine Learning and Data Labeling -- Can Rough Sets Help?

Dominik Ślęzek

Session 4A: Sunday, May 19, 15:30-18:00 Workshop on Applications of Deep Learning and Soft Computing Chairs: Dr. Hong Yu, Dr. Mengjun Hu Location: MCDA suite (S126) Link: TBA
Aspect-Based Sentiment Analysis in the LLM Era Nikita Neveditsin, Pawan Lingras, Vijay Mago
Lung Cancer Risk Prediction Model Trained with Multi-source Data Shijie Sun, Hanyue Liu, Ye Wang, Hong Yu
Advancing ITS Applications with LLMs: A Survey on Traffic Management, Transportation Safety, and Autonomous Driving Dingkai Zhang, Huanran Zheng, Wenjing Yue, Xiaoling Wang
Automated Brain Tumor Classification with Deep Learning Venkata Kandula, Yan Zhang
Clinical Medical Test Decision-making of Liver Disease using Granular-ball Rough Set Fanxin Xu, Zuqiang Su, Guoyin Wang
Cross-domain Structural Damage Identification based on Deep Domain Adaptation Algorithm Hao Wang, Baoli Wang, Caixia Cui, Pengling Wang

Session 4B: Sunday, May 19, 15:30-18:00 Special Session on General Rough Set Perspectives on Foundations of AI and Machine Learning Chair: Dr. Chris Cornelis Location: AT101 Link: TBA
On Tolerance-based Rough Set Operators and Their Covering Generalizations Piotr Wasilewski, Dominik Ślęzak
Rough Algebraic Semantics of Concepts in Distributed Cognition Perspective Mani A
Mapper-Based Rough Sets Mauricio Restrepo, Chris Cornelis
Representing Pedagogic Content Knowledge Through Rough Sets Mani A
Description logic for rough concepts Krishna Manoorkar, Andrea De Domenico, Alessandra Palmigiano
Parametrized γ-Decision Valuation for Variable Precision Rough Set Model Soma Dutta, Dominik Ślęzak
Generalized Multi-adjoint Fuzzy Rough Set Nicolas Madrid, Jesús Medina, Eloisa Ramírez Poussa

Session 5: Monday, May 20, 10:30-12:30

Main Track - Applications

Chairs: Dr. Ye Wang, Dr. Mengjun Hu

Location: MCDA suite (S126)

Link: TBA

Cross-Weighting Knowledge Distillation for Object Detection

Zhaoyi Li, Zihao Li, Xiaodong Yue

Hyp-DAN: Hyperbolic Distance-aware Attention Networks

Fuchuan Xiang, Jianhang Tang, Shaobo Li, Guoyin Wang, Ji Xu

Multimodal Propaganda Detection in Memes with Tolerance-based Soft Computing Method

Siddharth Kelkar, Srinivasa Ravi, Sheela Ramanna, Anand Madasamy

Optimizing Rough Set Flow Graph Inference

Jun Wang, Cory Butz

A Method of Multi-USV Reward Design Using Fuzzy Control

Jianfeng Xiao, Qun Liu, Xin Huang