

Program

Friday October 15

13:00–13:50	On-site registration
13:50–14:00	Conference opening
14:00–15:00	Session 1 (Classification)
15:00–15:30	Session 2 (Information Fusion)
15:30–16:00	Coffee break
16:00–17:00	Session 3 (Statistical Inference and Learning)
17:00–17:30	Q&A Tutorials
19:00–	Welcome reception

Saturday October 16

	Keynote by Van Nam Huynh
10:00–11:00	Machine Learning coupled with Evidential Reasoning for User Preference Chair: Xiaodong Yue
	Keynote by Chunlai Zhou
11:00–12:00	Basic Utility Theory for Belief Functions Chair: Zhunga Liu
12:00–14:00	Lunch break
14:00–14:30	Session 4 (Elicitation)
14:30–15:30	Session 5 (Deep Learning)
15:30–16:00	Coffee break
16:00–17:00	Session 6 (Conflict, inconsistency and specificity)
17:00–18:00	BFAS General Assembly
19:00–	Gala dinner

Sunday October 17

	Keynote by Deqiang Han
10:00–11:00	Learning-based Modelized Methods for Evidence Combination Chair: Zhunga Liu
	Keynote by Zengjing Chen
11:00–12:00	A Central Limit Theorem for Sets of Probability Measures Chair: Xiaodong Yue
12:00–14:00	Lunch break
14:00–15:00	Session 7 (Clustering)
15:00–15:30	Coffee break
15:30–16:15	Session 8 (Transfer Learning)
16:15–17:00	Session 9 (Algorithms and Computation)
17:00–17:10	Conference closure

Instruction for oral presentation

Each presentation is scheduled to be 15 minutes long, including questions. Instruction to chairman is to leave 10 minutes for the presentation itself and 5 minutes for questions/discussions

Sessions

Session 1 (Classification) (chair: Liyao Ma)

Improving Micro-Extended Belief Rule-Based System using Activation Factor for Classification Problems

Orbit Classification for Prediction Based on Evidential Reasoning and Belief Rule Base

Chao Sun, Xiaoxia Han, Wei He and Hailong Zhu

Imbalance Data Classification Based on Belief Function Theory

Jiawei Niu and Zhunga Liu

A Classification Tree Method Based on Belief Entropy for Evidential Data

Session 2 (Information Fusion) (chair: Frédéric Pichon)

A New Multi-Source Information Fusion Method Based on Belief Divergence Measure and the Negation of Basic Probability Assignment

Hongfei Wang, Wen Jiang, Xinyang Deng and Jie Geng

Improving an Evidential Source of Information Using Contextual Corrections Depending on Partial Decisions

Siti Mutmainah, Samir Hachour, Frédéric Pichon and David Mercier

Session 3 (Statistical Inference and Learning) (chair: Ryan Martin)

Entropy-based Learning of Compositional Models from Data

Radim Jiroušek, Václav Kratochvíl and Prakash P. Shenoy

Approximately Valid and Model-Free Possibilistic Inference

Leonardo Cella and Ryan Martin

Towards a Theory of Valid Inferential Models with Partial Prior Information

Ryan Martin

Ensemble Learning Based on Evidential Reasoning Rule with a New Weight Calculation Method

Cong Xu, Zhi-Jie Zhou, Wei He, Hailong Zhu and Yan-Zi Gao

Session 4 (Elicitation) (chair: Arnaud Martin)

Validation of Smets' Hypothesis in the Crowdsourcing Environment

Constance Thierry, Arnaud Martin, Jean-Christophe Dubois and Yolande Le Gall

Quantifying Confidence of Safety Cases with Belief Functions

Yassir Idmessaoud, Didier Dubois and Jérémie Guiochet

Session 5 (Deep Learning) (chair: Thierry Denœux)

Evidential Segmentation of 3D PET/CT Images

Ling Huang, Su Ruan, Pierre Decazes and Thierry Denœux

Fusion of Evidential CNN Classifiers for Image Classification

Zheng Tong, Philippe Xu and Thierry Denœux

Multi-branch Recurrent Attention Convolutional Neural Network with Evidence Theory for Fine-grained Image Classification

Zhikang Xu, Bofeng Zhang, Haijie Fu, Xiaodong Yue and Ying Lv

Deep Evidential Fusion Network for Image Classification

Shaoxun Xu, Yufei Chen, Chao Ma and Xiaodong Yue

Session 6 (Conflict, inconsistency and specificity) (chair: Anne-Laure Josselme)

Conflict Measure of Belief Functions with Blurred Focal Elements on the Real Line

Alexander Lepskiy

Logical and Evidential Inconsistencies Meet: First Steps

Nadia Ben Abdallah, Sébastien Destercke, Anne-Laure Josselme and Frédéric Pichon

A Note About Entropy and Inconsistency in Evidence Theory

Anne-Laure Josselme, Frédéric Pichon, Nadia Ben Abdallah and Sébastien Destercke

An Extension of Specificity-Based Approximations to Other Belief Function Relations

Tekwa Tedjini, Sohaib Afifi, Frédéric Pichon and Éric Lefèvre

Session 7 (Clustering) (chair: Kuang Zhou)

Fast Unfolding of Credal Partitions in Evidential Clustering

Zuowei Zhang, Arnaud Martin, Zhunga Liu, Kuang Zhou and Yiru Zhang

Credal Clustering for Imbalanced Data

Zuowei Zhang, Zhunga Liu, Kuang Zhou, Arnaud Martin and Yiru Zhang

Evidential Weighted Multi-View Clustering

Kuang Zhou, Mei Guo and Ming Jiang

Unequal Singleton Pair Distance for Evidential Preference Clustering

Yiru Zhang and Arnaud Martin

Session 8 (Transfer Learning) (chair: Lianmeng Jiao)

Transfer Evidential C-means Clustering

Lianmeng Jiao, Feng Wang and Quan Pan

Evidential Clustering Based on Transfer Learning

Kuang Zhou, Mei Guo and Arnaud Martin

Ensemble of Adapters for Transfer Learning Based on Evidence Theory

Ying Lv, Bofeng Zhang, Xiaodong Yue, Zhikang Xu and Wei Liu

Session 9 (Algorithms and Computation) (chair: Juan Jesús Salamanca)

Discussions on the Connectedness of a Random Closed Set

Juan Jesús Salamanca

An Efficient Computation of Dempster-Shafer Theory of Evidence Based on Native GPU Implementation

Noelia Rico, Luigi Troiano and Irene Díaz

QLEN: Quantum-Like Evidential Networks for Predicting the Decision in Prisoner's Dilemma

Jixiang Deng and Yong Deng

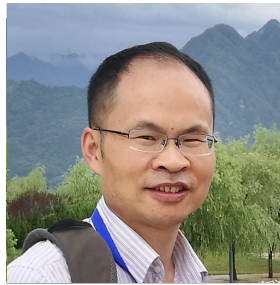
Keynote speakers



Professor **Van Nam Huynh**, Japan Advanced Institute of Science and Technology, Japan.

Title: Machine Learning coupled with Evidential Reasoning for User Preference

Abstract: Inferring user preferences from short texts generated by users on social platforms has a variety of applications in web-based decision support systems such as recommender systems and personalized marketing systems. Developing an efficient solution to this problem is still challenging due to difficulty in handling short texts and dynamic change of user preferences over time. In this talk, we will present a novel framework that tackles these challenges by combining advanced Machine Learning techniques for concept learning and Dempster-Shafer theory (DST) for reasoning and fusion to effectively infer user preferences. Two instances of the proposed framework will be demonstrated with experimental results and analysis that show the effectiveness and practicality of the developed methods.



Ass. Professor **Chunlai Zhou**, Renmin University, China.

Title: Basic Utility Theory for Belief Functions

Abstract: I will talk about a basic utility theory for belief functions which is common ground for different decision theories in Dempster-Shafer theory where the completeness requirement is dropped. The resulting preference relation is represented by subjective expectation of sets of utilities whose ordering is based on an ordering of outcome sets derived from a logical decision theory for complete ignorance. Moreover, we explore the preference aggregation problem within the utility theory and generalize some results by Harsanyi and Mongin to the setting of belief functions.



Professor **Deqiang Han**, Xi'an Jiaotong University, China.

Title: Learning-based Modelized Methods for Evidence Combination

Abstract: Evidence combination is typical uncertainty reasoning or information fusion in the theory of belief functions, which combines bodies of evidence stemming from different information sources. In traditional applications of evidence combination (e.g., pattern classification), given a sample, the basic belief assignments (BBAs) of different information sources are generated first, and then they are combined by a rule, e.g., Dempster's rule. We propose a modelized method for evidence combination. By just inputting the sample into the learned model of combination, a "combined" BBA is obtained. That is, it does not need to generate multiple BBAs for each sample for the combination. In our proposed modelized combination, one can generate different combination models with different combination rules. Experimental results and related analyses validate the related rationality and efficiency.



Professor **Zengjing Chen**, Shandong University, China.

Title: A Central Limit Theorem for Sets of Probability Measures

Abstract: We prove a central limit theorem for a sequence of random variables whose means are ambiguous and vary in an unstructured way. Their joint distribution is described by a set of measures. The limit is (not the normal distribution and is) defined by a backward stochastic differential equation that can be interpreted as modeling an ambiguous continuous-time random walk.