

SEMINAR



Speakers: Prof. Witold Pedrycz

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Witold Pedrycz received the M.Sc., Ph.D., and D.Sci. degrees from Silesian University of Technology, Gliwice, Poland, in 1977, 2000, and 2004, respectively. He is a Professor and Canada Research Chair (Computational Intelligence) in the Department of Electrical and Computer Engineering, University of Alberta, Edmonton, Canada. In 2009, he was elected as a foreign member of the Polish Academy of Sciences. In 2012, he was elected as a fellow of the Royal Society of Canada. His main research directions involve computational intelligence, fuzzy modeling and granular computing, knowledge discovery and data mining, fuzzy control, pattern recognition, knowledge-based neural networks, relational computing, and software engineering. He has published numerous papers in this area. He is also an author of 14 research monographs covering various aspects of computational intelligence and software engineering. Prof. Pedrycz has been a member of numerous program committees of IEEE conferences in the area of fuzzy sets and neurocomputing. He is intensively involved in editorial activities. He is an Editor-in-Chief of Information Sciences. Currently, he serves as an Associate Editor of IEEE TRANSACTIONS ON FUZZY SYSTEMS and is a Member of a number of editorial boards of other international journals.

Date: Thursday, January 28, 2016

Time: 11:00 AM

Venue: Engineering Building, Second floor,
Room 24C28 (ECE Seminar Room)

Title

Data Analytics with information granules: A Perspective of Rough Sets

Abstract

The apparent challenges in data analytics inherently associate with large volumes of data, data variability, and a quest for transparency and interpretability of obtained results. We advocate that information granules play a pivotal role in addressing these key challenges. We demonstrate that a framework of Granular Computing along with a diversity of its formal settings offers a badly needed conceptual and algorithmic setting instrumental for data analytics.

We elaborate on selected ways in which information granules and their processing address help in coping with abundance of data. A suitable perspective built with the aid of information granules is advantageous in realizing a suitable level of abstraction and forming sound, problem-oriented tradeoffs among precision of results, easiness of their interpretation, value of the results and their stability. All those aspects emphasize importance of actionability and interestingness of the produced findings.

We cast the study in the setting of rough sets. To make the talk self-contained, it includes a primer of rough sets covering the essentials of the concepts and the theory including the underlying definitions and interpretations. The algorithmic essentials including processes of reduction involving reducts and decision tables are elaborated on. Hybrid structures (including rough-fuzzy and fuzzy-rough sets) are discussed.

ALL ARE CORDIALLY INVITED