THE UNIVERSITY OF WINNIPEG

Applied Computer Science

Seminar

Speakers: **Dr. Aleksandra Werner and Dr. Małgorzata Bach**

Friday, March 31, 2023
Noon – 1:00 p.m.

Zoom Meeting: https://us06web.zoom.us/j/89872638996

Meeting ID: 898 7263 8996
Passcode: 866056

Title: "Delving into Imbalanced, Overlapping, and Multidimensional Data"

Abstract: Real data on the basis of which researchers try to build decision models and draw conclusions is often not perfect, which means that they require costly and time-consuming preprocessing as well as the selection of appropriate methods of discovering the knowledge they contain. One of the main problems facing researchers in this area is the uneven distribution of data between classes, which often causes problems in constructing machine learning models that would be able to classify rare objects correctly. Another common problem is the curse of dimensionality. In many cases, many parameters describing the analyzed objects increase the computational complexity and make it difficult to generalize the decision model. During the talk, we want to share our knowledge and experience in processing such imperfect data, as well as share our thoughts and reflections on the subject.

Bios: Aleksandra Werner is the Assistant Professor in the Dept. of Applied Informatics at the Faculty of Automatic Control, Electronics and Computer Science at the Silesian University of Technology, Gliwice, Poland. Her Ph.D. dissertation addressed the problem of selecting a temporal database model for query optimization. She has been involved in several research projects, including programs within the university structure and inter-academic activities, e.g., undertaken with the Polish-Japanese Academy of Information Technology, where she was a member of the Research Team. Her current scientific interests concern issues related not only to databases but also, for example, to e-learning, including CMS, LMS, and LCMS systems, computer architecture, and machine learning.

Małgorzata Bach is an assistant professor in the Dept. of Applied Informatics at the Faculty of Automatic Control, Electronics, and Computer Science of the Silesian University of Technology (SUT), Gliwice, Poland. She has also cooperated with the R & D Center of the Polish-Japanese Academy of Information Technology, Humanitas University, and WSB University. Her Ph.D. thesis concerned the methods of constructing database search tasks in the process of translating queries expressed in natural language. Her current scientific interests concern issues related to the problems of multidimensional and imbalanced data in the context of classification tasks. She is currently a member of the scientific committee of WrightBroS project (Horizon 2020; Marie Skłodowska-Curie Actions Research and Innovation Staff Exchange project), in which industrial partners from Austria and Slovakia participate.

"Everyone is welcome to attend but must keep mics and cameras off.