Title: Utility-Oriented Pattern Analytic and Mining Techniques

The main purpose of data analytics and mining is to find novel, potentially useful patterns that can be utilized in real-world application. For identifying and evaluating the usefulness of different kinds of patterns, many techniques and constraints have been proposed. In recent years, there has been an increasing demand for utility-oriented pattern analytic and mining since it can be utilized to discover more useful and meaningful information rather than fundamental binary-based pattern mining approaches. Besides, the utility-oriented pattern analytic and mining techniques can be applied in many domains and applications, including cross-marketing, e-commerce, finance, medical, and biomedical applications. In this talk, I will present a general, comprehensive, and structured overview of the state-of-the-art methods in the field of utility-oriented pattern analytic and mining techniques. The basic concept of utility-oriented techniques is first introduced, and a taxonomy of the most common and state-of-the-art approaches for mining different kinds of high-utility patterns will be presented. Several well-known open-source software packages for the pattern mining will be addressed, especially the SPMF open-source library will be introduced and presented. Finally, I will conclude and summarize the relevant applications of utility-oriented pattern analytic and mining techniques.

Jerry Chun-Wei Lin is currently working as the Associate Professor at the Department of Computer Science, Electrical Engineering and Mathematical Sciences, Western Norway University of Applied Sciences, Bergen, Norway. He has published more than 300 research papers in refereed journals (more than 120 SCI papers including IEEE TKDE, IEEE TCYB, ACM TKDD, ACM TDS, DMKD, KAIS, KBS) and international conferences (IEEE ICDE, IEEE ICDM, PKDD, PAKDD). His research interests include data mining, soft computing, artificial intelligence and machine learning, and privacy-preserving and security technologies. He is the Editor-in-Chief of Data Science and Pattern Recognition (DSPR) journal, Associate Editor of Journal of Network Intelligence, Journal of Internet Technology, IEEE Access, and Journal of Network Intelligence. He also serves as the Editorial Board Member of Intelligent Data Analysis, and International Journal of Information Technology, Communications and Convergence. He has served as the (guest) editor and edited 14 books/special issues. He is the co-leader of the well-known SPMF project, which provides more than 170 data mining algorithms and has been widely cited in many different applications. He is also the founder and the leader of PPSF project. Moreover, he has been awarded as the Most Cited Chinese Researcher in 2018 by Elsevier. He is the Senior Member of both IEEE and ACM.