

SS28: Fuzziness in Massive Data

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The availability of massive data in the modern Data Science is one of the strongest innovation drivers that is radically changing the way products and services are conceived, made, delivered and operated. The data gathering became fast-paced, leading to high volumes of data to be collected and analyzed. Fuzziness is called to play a relevant role in order to make the analysis of massive data feasible, effective and meaningful. This special session provides some examples of how fuzzy techniques can be employed to build models from massive data in different domains. As emerging from contributions, fuzziness is important in developing models and compressing information. With respect to the latter, fuzzy transform represents a relevant tool to reduce massive data to a manageable amount

The first contribution is "Which Players will Leave Their Community? Predicting Guild Abandonments in World of Warcraft Game Data", by Gergely Posfai, Gabor Magyar and Laszlo T. Koczy. In this paper, author focus their attention to the domain of gaming. As case study they consider the best-selling game World of Warcraft, one of the most popular multiplayer online role-playing games, with million subscribers over the world. They propose a model based fuzzy c-means clustering in order to predict which of the players will leave their guild, according to clusters of players that emerge from gaming patterns

The second contribution is titled "Improved Stability Condition for Fuzzy Systems with Interval Time Varying Delay" by Rupak Datta, Rajeeb Dey, B. Bhattacharya and A. Chakraborti. They investigate the stability of Takagi-Sugeno (T-S) fuzzy systems subject to interval time varying delay, proposing a new Lyapunov-Krasovskii (L-K) functional for the analysis.

In the third contribution "Joining Fuzzy Transform and Local Learning for Wind Power Forecasting" by Vincenzo Loia, Stefania Tomasiello and Alfredo Vaccaro, authors focus on the problem of wind forecasting from massive sensor data. They propose a scheme able to combine local weighted regression with fuzzy transform.

Fuzzy transform is also employed by the fourth contribution titled "An Alternative Estimation of Market Volatility based on Fuzzy Transform" by Luigi Troiano, Elena Mejuto Villa and Pravesh Kriplani. In this case fuzzy transform is used to build an alternative model of price volatility able to provide a summary of price dynamics in financial time series.

Finally, the fifth contribution titled "Application of Regression Driven F-Transform to Smoothing of Financial Time Series" by Luigi Troiano, Pravesh Kriplani and Irene Diaz, propose an extension of fuzzy transform able to include non-linear regression models. As application, the paper applies to the smoothing of financial time series.