

# Learning and Explainability over Time-series and Data Stream

By

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**Abstract:** The field of time series analysis has been very active during the last decade. This task that aims at analyzing chronological data has been used in a diverse range of application domains including meteorology, medicine, physics and also computing wrt the Internet of Things. Recently, lots of accurate methods have been developed to perform time series analysis. However, applications in which the time series data have uncertainty and results need to be explained are still challenging and under-explored. All measurements performed by a mechanical system contain uncertainty, and ignoring the uncertainty of the data during their analysis can lead to inaccurate conclusions. Explainability is nowadays mandatory for deploying AI-based applications. Hence the need to implement uncertain and explainable data analysis techniques is of great importance. This talk will first introduce basic concepts around time series data, then review state-of-the art on uncertainty and explainability in data mining tasks, and finally present our contributions in clustering as well as classification of time series data. We will also describe new challenges within data stream settings.



**Biography of the Presenter:** Engelbert Mephu Nguifo is a full professor of computer science at University Clermont Auvergne (UCA), France. At UCA, he has served as Vice-President of the mathematical and computer science department (2012-2016). He is leading research on complex data mining and machine learning in the joined University-CNRS laboratory LIMOS, where he is co-chair of the Information and Communication Systems research group. His research interests include formal concept analysis, artificial intelligence, machine learning, complex data mining, pattern recognition, bioinformatics, big data, and knowledge representation. Mephu Nguifo has a Ph.D. in computer science from the University of Montpellier. He has published more than hundred technical papers in majors journals and conferences, and was advisor of twenty-five PhD students.

He was PI of several international research project grants. He has been member of the steering committee of Concept Lattices and their Applications (CLA) conference, and has served as PC co-Chair of CLA2006, COSI2025 and ISMIS2026, as well as French conference on Machine Learning (CAp2010). He has co-organized several workshops of majors conferences (ECAI, IJCAI, ICML, ECML/PKDD, VLDB) on several research topics (Bioinformatics and AI, Evolving Graphs, Concept Lattices). He is an ACM Senior member, and member of French AI, data mining, and classification associations (AFIA, EGC). He was member of the executive board of the French Association on Artificial Intelligence (AFIA). He is member of the executive board of the French CNRS research group on Artificial Intelligence (GDR RADIA). He was winner of 2023 Nikolaos Bourbakis Award.