TempXAI: Explainable AI for Time Series and Data Streams 2024

Workshop Proceedings

Zahraa Abdallah[1], Fabian Fumagalli[2], Barbara Hammer[2], Eyke Hüllermeier[3], Matthias Jakobs[4], Emmanuel Müller[5], Maximilian Muschalik[3], Panagiotis Papapetrou[6], Amal Saadallah[4] and George Tzagkarakis[7]

[1]*University of Bristol, UK*
[2]*Bielefeld University, Germany*
[3]*LMU Munich, Germany*
[4]*Lamarr Institute for Machine Learning and Artificial Intelligence, Germany*
[5]*Research Center Trustworthy Data Science and Security, Germany*
[6]*Stockholm University, Sweden*
[7]*FORTH-ICS, Greece*

Abstract

This document is the preface of the proceedings of the TempXAI Workshop Tutorial on Explainable AI for Time Series and Data Streams, held on September 9th, 2024, in Vilnius, Lithuania. We received 5 submissions for peer-review, out of which we accepted 4 papers for this volume. In addition, we publish two extended abstracts of the tutorial that we give as a part of the workshop program.

Preface

Explainable Artificial Intelligence (XAI) is crucial for time series and data streams, particularly in high-stakes domains like finance, healthcare, and industrial control, where understanding AI-driven decisions is as important as the decisions themselves. XAI enhances interpretability, helping to meet regulatory demands for transparency, improving model performance by diagnosing issues, and adapting to non-stationary data. It also fosters user trust by making AI processes more transparent, aids in debugging by highlighting erroneous predictions, and facilitates the involvement of domain experts who can better interpret and refine AI models. Overall, XAI ensures that AI systems handling time-sensitive data are not only accurate but also transparent, trustworthy, and adaptable.

The workshop explores the crucial intersection of Explainable AI (XAI) and the challenges posed by time series and data streams. Our primary objectives include understanding Dynamic Interpretability, delving into techniques that offer transparent insights into time-evolving data, and providing a better understanding of machine learning models in dynamic environments. The workshop is also combined with a tutorial to equip attendees with practical insights, tools, and techniques to interpret and trust predictions in online scenarios where data is continuously changing. In addition, we aim to encourage the sharing of novel XAI tools specific to time series and data streams, case studies, and practical implementations of employing interpretable machine learning for these systems.

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zahraa.abdallah@bristol.ac.uk (Z. Abdallah); ffumagalli@techfak.uni-bielefeld.de (F. Fumagalli); bhammer@techfak.uni-bielefeld.de (B. Hammer); eyke@lmu.de (E. Hüllermeier); matthias.jakobs@tu-dortmund.de (M. Jakobs); emmanuel.mueller@cs.tu-dortmund.de (E. Müller); Maximilian.Muschalik@lmu.de (M. Muschalik); panagiotis@dsv.su.se (P. Papapetrou); amal.saadallah@cs.tu-dortmund.de (A. Saadallah); gtzag@ics.forth.gr (G. Tzagkarakis)
0000-0002-1291-2918 (Z. Abdallah); 0000-0003-3955-3510 (F. Fumagalli); 0000-0002-0935-5591 (B. Hammer); 0000-0002-9944-4108 (E. Hüllermeier); 0000-0003-4607-8957 (M. Jakobs); 0000-0002-5409-6875 (E. Müller); 0000-0002-6921-0204 (M. Muschalik); 0000-0002-4632-4815 (P. Papapetrou); 0000-0003-2976-7574 (A. Saadallah); 0000-0002-4099-691X (G. Tzagkarakis)

This workshop, which is co-located with ECML-PKDD 2024 in Vilnius, Lithuania, is an extension of last year's edition of the Explainable AI (XAI) for Time Series[1] and Explainable Artificial Intelligence from Static to Dynamic[2] workshops at ECML-PKDD 2023 in Torino, Italy. This year, we accepted 4 papers out of 5 submissions for their publication in these workshop proceedings. In addition to these contributions, we publish two extended abstracts of the tutorial that belongs to the workshop program. We thank all authors for their valuable submissions and all program committee members for their great support.

Organisation

Organizing Committee

Zahraa Abdallah University of Bristol, UK

Fabian Fumagalli Bielefeld University, Germany

Barbara Hammer Bielefeld University, Germany

Eyke Hüllermeier LMU Munich, Germany

Matthias Jakobs Lamarr Institute for Machine Learning and Artificial Intelligence, Germany

Emmanuel Müller Research Center Trustworthy Data Science and Security, Germany

Maximilian Muschalik LMU Munich, Germany

Panagiotis Papapetrou Stockholm University, Sweden

Amal Saadallah Lamarr Institute for Machine Learning and Artificial Intelligence,Germany

George Tzagkarakis FORTH-ICS, Greece

Program Committee

Raphael Fischer Lamarr Institute for Machine Learning and Artificial Intelligence, Germany

Sebastian Buschjäger Lamarr Institute for Machine Learning and Artificial Intelligence, Germany

Bin Li Research Center Trustworthy Data Science and Security, Germany

Maja Schneider TU Munich University, Germany

George Tzagkarakis FORTH-ICS, Greece

André Artelt Bielefeld University, Germany

Valerie Vaquet Bielefeld University, Germany

Fabian Hinder Bielefeld University, Germany

Jonas Hanselle LMU Munich, Germany

Udo Schlegel Konstanz University, Germany

[1] https://lamarr-institute.github.io/xai-ts-workshop/
[2] https://sites.google.com/view/dynxai-ecmlpkdd-2023