Preface of the Proceedings of the 1st Workshop on Advanced AI in Explainability and Ethics for the Sustainable Development Goals (ExplAI-2025)

Tetiana Hovorushchenko[1,†], Oleksander Barmak[1,†], Abdel-Badeeh M. Salem[2,†] and Pavlo Radiuk[1,†]

[1]Khmelnytskyi National University, 11, Instytuts'ka str., Khmelnytskyi, 29016, Ukraine
[2]Ain Shams University, El-Khalyfa El-Mamoun Street Abbasya, Cairo, Egypt

Abstract

This volume collects the papers accepted for publication at the 1st Workshop on Advanced AI in Explainability and Ethics for the Sustainable Development Goals (ExplAI-2025). The event took place in Khmelnytskyi, Ukraine, on November 7, 2025. This volume contains a total of 15 papers, all of which were presented at the workshop. The workshop aimed to address the growing need for transparency and trustworthiness in artificial intelligence systems, particularly those applied in high-stakes domains aligned with the United Nations Sustainable Development Goals (SDGs). By fostering interdisciplinary dialogue, ExplAI-2025 explored methodologies for explainable AI (XAI) that bridge the gap between complex algorithmic decision-making and human interpretability, ensuring that technological progress adheres to ethical governance frameworks.

1. Introduction

The rapid proliferation of artificial intelligence in critical sectors, from healthcare and urban planning to information security, has underscored the urgent necessity for systems that are not only accurate but also transparent and ethically sound. ExplAI-2025 was established to seek cutting-edge research fusing robust AI methodology with ethical principles and demonstrable social impact.

The workshop specifically focused on the intersection of these technological requirements with the global imperative of the UN SDGs. Topics of interest ranged from explainable machine learning models for medical diagnostics to ethical frameworks for countering disinformation. The event provided a platform for exchanging ideas, forging collaborations, and charting a path toward responsible, human-centred innovation.

2. Submission and Review Process

The program committee received 44 submissions from authors representing 8 countries. To ensure high quality and impartiality, each submission underwent a rigorous double-blind peer-review process. Every paper was evaluated by at least two independent members of the international program committee, consisting of experts from Ukraine, Poland, Slovakia, the USA, the UK, Canada, Estonia, the Czech Republic, Egypt, Algeria, and Kazakhstan.

The acceptance criteria were stringent: papers required at least one strong acceptance recommendation and no rejections to be considered. In instances of disagreement between reviewers, a third expert was invited to adjudicate. Based on this process, 15 papers were accepted for presentation and inclusion in this volume, resulting in an acceptance rate of approximately 34%.

The program was organized into four thematic sessions:

1. Explainable AI: Focused on foundational methods, visual embedders, and interpretable models for forecasting and security.
2. AI Ethics and Governance: Addressed resilience to social engineering, ensemble strategies for small data, and requirements engineering.
3. Sustainable Development Goals: Covered medical diagnostics, urban traffic optimization, and knowledge engineering for cultural heritage.
4. Trustworthy AI: Explored vision transformers, satellite imagery analysis, and verifiable fake news detection.

Acknowledgements

November 2025

<div align="right">

Tetiana Hovorushchenko
Oleksander Barmak
Abdel-Badeeh M. Salem
Pavlo Radiuk

</div>

Committees

General Chair

- Tetiana Hovorushchenko, *Khmelnytskyi National University, Ukraine*

Program Committee Chairs

- Oleksander Barmak, *Khmelnytskyi National University, Ukraine*
- Iurii Krak, *Taras Shevchenko National University of Kyiv, Ukraine*

Organizing Committee

- Pavlo Radiuk, *Khmelnytskyi National University, Ukraine*
- Oleksandr Mazurets, *Khmelnytskyi National University, Ukraine*
- Maryna Molchanova, *Khmelnytskyi National University, Ukraine*
- Olena Sobko, *Khmelnytskyi National University, Ukraine*

International Program Committee

- Eduard Manziuk, *Khmelnytskyi National University, Ukraine*
- Nataliia Shakhovska, *Lviv Polytechnic National University, Ukraine*
- Vyacheslav Kharchenko, *National Aerospace University KhAI, Ukraine*
- Volodymyr Lytvynenko, *Lublin University of Technology, Poland*
- Vyacheslav Kovtun, *Institute of Theoretical and Applied Informatics, Polish Academy of Sciences, Poland*
- Roman Kuc, *Yale University, USA*
- Orken Mamyrbayev, *Institute of Information and Computational Technologies, Kazakhstan*
- Andrii Biloshchytskyi, *Astana IT University, Kazakhstan*
- Waldemar Wojcik, *Lublin University of Technology, Poland*
- Ivan Izonin, *The Bartlett School of Sustainable Construction, University College London, UK*
- Sergey Yakovlev, *Lodz University of Technology, Poland*
- Adam Wierzbicki, *Polish-Japanese Academy of Information Technology, Poland*
- Sergii Babichev, *Jan Evangelista Purkyne University in Usti and Labem, Czech Republic*
- Dmytro Chumachenko, *University of Waterloo, Canada*
- Vitaly Levashenko, *Zilina University, Slovakia*
- Elena Zaitseva, *Zilina University, Slovakia*
- Miroslav Kvassay, *Zilina University, Slovakia*
- Artem Boyarchuk, *TalTech University, Estonia*
- Tomáš Sochor, *University of Ostrava, Czech Republic*
- Abdel-Badeeh M. Salem, *Ain Shams University, Egypt*
- Houda El Bouhissi, *University of Bejaia, Algeria*

Organization & Sponsors