Call for Papers

28th International Workshop on Evolutionary Rule-based Machine Learning

IWERL 2025 (formerly IWLCS)

to be held as part of GECCO (July 14 - 18, 2025) in Málaga, Spain (online participation possible)

Modern machine learning systems, including generative AI and large language models (LLMs), offer significant potential for addressing real-world challenges. However, the decision-making process of the majority of these models is often difficult to interpret. The interpretability of decisions is critical in many real-world applications. Evolutionary rule-based machine learning (ERL) systems generate niche-based solutions, require less memory, and can be trained using comparatively small data sets. The decision-making process of the ERL systems is interpretable, which is an important step toward eXplainable AI (XAI).

ERL methods have been developed using a diverse array of learning paradigms, including supervised learning, unsupervised learning, and reinforcement learning. ERL encompasses several prominent categories, such as Learning Classifier Systems, Ant-Miner, artificial immune systems, and fuzzy rule-based systems. The International Workshop on Evolutionary Rule-based Machine Learning (IWERL) is designed to provide a platform for sharing the research trends in the realm of ERL. It aims to highlight modern implementations of ERL systems for real-world applications and to show the effectiveness of ERL in creating flexible and eXplainable AI systems. The particular topics of interest of this workshop are (not exclusively):

- Advances in ERL methods local models, problem space partitioning, rule mixing, …
- Applications of ERL medical domains, bioinformatics, computer vision, games, cyber-physical systems, …
- State-of-the-art analysis surveys, sound comparative experimental benchmarks, carefully crafted reproducibility studies, …
- Formal developments in ERL provably optimal parametrization, time bounds, generalization, …
- Comprehensibility of evolved rule sets knowledge extraction, visualization, interpretation of decisions, XAI, …
- Advances in ERL paradigms Michigan/Pittsburgh style, hybrids, iterative rule learning, …
- Hyperparameter optimization for ERL hyperparameter selection, online self-adaptation, …
- Optimizations and parallel implementations GPU acceleration, matching algorithms, …
- Generative AI and LLMs in ERL Integration of generative models and LLMs with ERL, …

Submission deadline:	**March 26, 2025**
Decision notification:	April 28, 2025
Camera-ready deadline:	May 5, 2025
Author's mandatory registration:	May 8, 2025

Why submit to IWERL '25?

- reviews by renowned ERL experts
- published as part of the GECCO conference companion
- usually online within one month after the conference

Submissions

- This workshop accepts two types of submissions:
  - regular papers (up to *8 pages* excl. references) on *novel* research
  - extended abstracts (up to *2 pages* excl. references) summarizing, showcasing and/or highlighting your *recent, already-published, work on ERL*
- All submissions must conform to the GECCO submission instructions and be submitted via GECCO's submission system.

Workshop organization

- Abubakar Siddique, Wellington Institute of Technology, New Zealand
- Michael Heider, University of Augsburg, Germany
- Hiroki Shiraishi, Yokohama National University, Japan

More information at https://iwlcs.organic-computing.de.