

# The Human in Interactive Machine Learning: Analysis and Perspectives for Ambient Intelligence (Abstract Reprint)

Kevin Delcourt<sup>1</sup>, Sylvie Trouilhet<sup>1</sup>, Jean-Paul Arcangeli<sup>1</sup> and Françoise Adreit<sup>2</sup>

<sup>1</sup> IRIT, Université de Toulouse, UT3, Toulouse, France

<sup>2</sup> IRIT, Université de Toulouse, UT2J, Toulouse, France

kevin.delcourt@irit.fr, sylvie.trouilhet@irit.fr, jean-paul.arcangeli@irit.fr, francoise.adreit@irit.fr

**Abstract Reprint.** This is an abstract reprint of a journal article by [Delcourt *et al.*, 2025].

## Abstract

As the vision of Ambient Intelligence (AmI) becomes more feasible, the challenge of designing effective and usable human-machine interaction in this context becomes increasingly important. Interactive Machine Learning (IML) offers a set of techniques and tools to involve end-users in the machine learning process, making it possible to build more trustworthy and adaptable ambient systems. In this paper, our focus is on exploring approaches to effectively integrate and assist human users within ML-based AmI systems. Through a survey of key IML-related contributions, we identify principles for designing effective human-AI interaction in AmI applications. We apply them to the case of Opportunistic Composition, which is an approach to achieve AmI, to enhance collaboration between humans and Artificial Intelligence. Our study highlights the need for user-centered and context-aware design, and provides insights into the challenges and opportunities of integrating IML techniques into AmI systems.

## References

[Delcourt *et al.*, 2025] Kevin Delcourt, Sylvie Trouilhet, Jean-Paul Arcangeli, and Françoise Adreit. The human in interactive machine learning: Analysis and perspectives for ambient intelligence. *J. Artif. Int. Res.*, 81, January 2025.