

HCAI4U 2023 - Preface to the First Workshop on User Perspectives in Human-Centred Artificial Intelligence

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Abstract

The emerging concept of *Human-Centred Artificial Intelligence* (HCAI) involves the amplification, augmentation, empowerment, and enhancement of individuals. The goal of HCAI is to ensure that AI meets our needs while also operating transparently, delivering fair and equitable outcomes, and respecting privacy, all while preserving human control. This approach involves multiple stakeholders, such as researchers, developers, business leaders, policymakers, and users, who are affected in various ways by the implementation and evaluation of AI systems. The primary focus of the *First Workshop on User Perspectives in Human-Centred Artificial Intelligence* (HCAI4U) is to examine the potential positive and negative impacts of automated decision-making systems on end-users, as well as how their interaction with AI is influenced by human-centred aspects of reliability, safety, and fairness. The workshop aims to facilitate discussion and exchange of ideas among the community on advances in developing trustworthy, fair, and privacy-preserving systems, as well as user interfaces that are explainable, with a specific focus on the users' perception in real-world scenarios rather than solely on the algorithmic and model performance. Additionally, HCAI4U aims to foster cross-disciplinary and interdisciplinary discussions between experts from various research fields, such as computer science, psychology, sociology, law, medicine, business, etc., to discuss problems and synergies in this exciting research topic.

Keywords

Human-Centred Artificial Intelligence, Human-Computer Interaction, Artificial Intelligence, User Perspectives, Reliability, Trustworthiness, Explainability, Fairness

1. Background and Motivation

Living in the current digital era, the interaction with artificial intelligence (AI) systems has become, consciously or not, an integral part of everyone's life. Machine learning (ML) and deep learning (DL) technologies have lately achieved significant success and are widely acknowledged

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for their capabilities, especially with the advent and widespread of generative models, like DALL-E 2¹ (based on ImageGPT²), and large language models such as ChatGPT³.

It is widely believed that the next stage in their development will focus on making them more *human-centred*. Ben Shneiderman, in his book “*Human-Centered AI*” (Oxford Press, 2022), has provided the foremost explanation of the novel concept of *Human-Centred Artificial Intelligence* (HCAI), which involves the amplification, augmentation, empowerment, and enhancement of individuals. Rather than emphasising technologies that independently perform tasks, the objective is to create technologies allowing individuals to carry out tasks more efficiently. This approach of empowering individuals has been the aim of technology from the outset, as exemplified by information networks, the internet, emails, digital navigation, and digital photography. The utmost importance is given to *human values* such as people’s rights, justice, and dignity. HCAI seeks to preserve human control to ensure AI meets our needs while operating transparently, delivering fair and equitable outcomes, and respecting privacy. There are several *stakeholders* in this process, including researchers, developers, business leaders, policymakers and users, each affected by this new approach to implementing and evaluating AI systems.

In particular, the *First Workshop on User Perspectives in Human-Centred Artificial Intelligence* (HCAI4U)⁴ concentrates on the potential positive and negative impacts of automated decision-making systems on the actual end-users of the same and how their interaction with AI is being influenced by the human-centred aspects of *reliability*, *safety* and *fairness*. In this workshop, we aim to discuss and exchange ideas within the community about the advances in the development of trustworthy, fair and privacy-preserving systems, as well as explainable user interfaces, with a specific focus on the users’ perception in real-world scenarios and not (only) on the algorithmic and model performance. Moreover, HCAI4U is intended to foster a cross-disciplinary and interdisciplinary discussion between experts from different fields (e.g. computer science, psychology, sociology, law, medicine, business, etc.) to discuss problems and synergies in this exciting research topic.

2. Accepted Papers

We believe that the program provides a good balance between the different topics related to the area of Human-Centred Artificial Intelligence, especially focusing on innovative approaches for user perspectives. The accepted papers range from exploring conversational agents in scientific writing to rigorous evaluation of explainability in modern DL architectures (e.g. Graph Neural Networks) to the design and analysis of novel regulations for human-centred models, including studying their impact on existing AI models. In total, 5 contributions were accepted at HCAI4U:

1. *Et Machina: Exploring the Use of Conversational Agents such as ChatGPT in Scientific Writing* - Khaled Kassem (TU Wien, Austria) and Florian Michahelles (TU Wien, Austria).
 - This paper explores the use of conversational agents, specifically ChatGPT, in scientific writing. The authors evaluate the generated text’s quality, factuality,

¹<https://openai.com/product/dall-e-2>

²<https://openai.com/research/image-gpt>

³<https://openai.com/blog/chatgpt>

⁴<https://sites.google.com/view/hcai4u2023>

and coherence and provide recommendations for using conversational agents in scientific writing. They highlight that while ChatGPT shows promise as a scientific writing tool, further research is needed to enhance its accuracy and scientific validity. The authors caution that ChatGPT should be viewed as a complement to human writing rather than a replacement.

2. *GNN-Based Explainable Recommendation Systems: Are We Rigorously Evaluating Explanations?* - Andrea Montagna (University of Padua, Italy), Alvis De Biasio (University of Padua, Italy), Nicolò Navarin (University of Padua, Italy) and Fabio Aiolli (University of Padua, Italy).

- This position paper discusses the evaluation of explanations in graph-based explainable recommender systems. The paper highlights the need for quantitative and comparable evaluation metrics for explanations and suggests using well-known guidelines for explainable recommender systems. The current evaluation methods used in the literature are discussed, including qualitative case analyses and a few quantitative approaches. The paper concludes by emphasising the importance of evaluating recommendations and explanations in graph-based systems.

3. *Can Justice be a Measurable Value for AI? Proposed Evaluation of the Relationship Between NLP Models and Principles of Justice* - Lidia Marassi (University of Naples Federico II, Italy), Narendra Patwardhan (University of Naples Federico II, Italy) and Francesco Gargiulo (National Research Council of Naples, Italy).

- This paper proposes evaluating the fairness and ethical implications of NLP models by applying the concept of justice. The authors suggest adapting the concept of justice to evaluate the performance of NLP systems and creating a rating scale based on ethical principles such as freedom, human dignity, equality of opportunity, social inclusion, and sustainability. Quantitatively measuring these values makes it possible to estimate the “amount of justice” or fairness demonstrated by different NLP systems. The authors emphasise the importance of transparency, fairness of treatment, and accessibility in NLP models to ensure ethical and equitable use.

4. *Designing Human-Centric Foundation Models* - Narendra Patwardhan (University of Naples Federico II), Shreya Shetye (Deepkapha AI Research, Netherlands), Lidia Marassi (University of Naples Federico II, Italy), Monica Zuccarini (University of Naples Federico II, Italy), Tannistha Maiti (Deepkapha AI Research, Netherlands) and Tarry Singh (Deepkapha AI Research, Netherlands).

- This article discusses the challenges of using generative AI models as foundation models and proposes using sustainability and programmable principles in architectural design to address these challenges. The paper explores the potential of improving the accessibility and extensibility of foundation models, as well as the importance of human-centric design and responsible development. The authors also discuss key components of foundation models and suggest sustainable alternatives. Additionally, the article explores the concept of programmable for user-focused AI, including customisation, control, and alignment with individual needs and values.

5. *Artificial Intelligence, Robotics and Fundamental Rights* - Massimiliano Delfino (University of Naples Federico II, Italy).

- This paper discusses the importance of understanding the issues posed by robotics, particularly AI-enhanced ones, and the significance of the Fundamental Rights approach to AI. It explores the legal implications of robotics and the link between robotics and AI, accentuating the need for regulations to ensure the peaceful coexistence of humans and robots. The paper also discusses the two proposals for EU regulation on AI and the market for digital services, highlighting the applicability of the Charter of Fundamental Rights to these regulations.

3. Invited Talk

The workshop program is further enriched through a keynote given by a distinguished researcher in HCAI, especially in explainability and fairness:

- *User Perspectives in Fair Recommender Systems: A Paradigm Shift* - Mirko Marras, Assistant Professor at University of Cagliari, Italy.
 - The landscape of recommender systems has experienced a transformative shift in recent years, fuelled by the urgent need to address the ethical challenges surrounding algorithmic biases and the quest for fairness. In this talk, we delve into the central role of user perspectives, recognising their significance as key drivers for constructing fair recommendation algorithms. Through real-world case studies, we first unveil the profound impact of biased recommendations on individuals, communities, and society at large. We expose the potential consequences of these biases, shedding light on the necessity for change. With this critical backdrop in mind, we showcase and discuss recent debiasing techniques that, by embracing user perspectives, can lead to more inclusive and representative recommender systems, thereby fostering trust and engagement among users.

4. Program Committee

As a final mention, the HCAI4U Chairs would like to thank all the members of the Program Committee, which are listed below, as well as the organisers of the CHItaly 2023 Conference⁵.

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⁵<https://chitaly2023.it/>

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