HCI International 2023
23-28 July 2023,
AC Bella Sky Hotel and Bella Center, Copenhagen, Denmark

Call for Participation

How to develop demystified, human-centric, and sustainable AI?

Tuesday, 25 July 2023 - 08:30-12:30

Christian Zinke-Wehlmann
University of Leipzig, KMI, Germany
zinke@infai.org

Angelika C. Bullinger-Hoffmann
Chemnitz University of Technology
Chair of Ergonomics and Innovation Management, Germany
angelika.bullinger-hoffmann@mb.tu-chemnitz.de

Aim of the workshop

Digital transformation in industry involves more than purely technological transformation, e.g., through the implementation of AI in business cases. It potentially affects the entire company, its supply chains, and the social and ecological ecosystem. Employees will be affected first by the technology-driven redesign of processes, business models and organizational structures. Some of these developments are leading to the fear of job-destroying AI, which attacks social cohesion [1,2]. While public discussion treats AI like an undesignable, sometimes uncontrollable black box, researchers recognize the importance of demystification of AI through explainability and transparency. Thus, the goals of explainable AI (XAI) are therefore to establish transparency, trustworthiness, causality, and interpretability [3].

Demystification, e.g., through XAI, is the first step towards understanding the decision-making process of AI. The co-actor AI in processes can then be identified by understanding the role of AI in business processes and in general. Assigning a transparent role and function to AI promotes a fruitful collaboration between humans and AI [4]. Focusing on the role of AI and the novel requirements and dependencies can lead to the question of the necessary competencies as well as the empowerment of employees in terms of co-design of AI systems and AI-based co-creation. Demystification of AI enables organizations to fully value creation through AI, as well as the possibility to counteract potential negative sustainable impact,

always keeping the potentially affected human (whether employee or customer) at the center.

While the research and development targets may be clear, there is a lack in practical design pattern and methods to ensure human-centered and sustainable AI. The aim of the workshop is to connect interdisciplinary experts to address these issues and to discuss challenges, methods, approaches and potentials for sustainable and human-centered (HC) AI design by or through demystification. In particular, the aspects of explainability will be at the center of the discourse. One goal is to understand the main hurdles companies face in practice by presenting use cases. Furthermore, the interdisciplinary discussion, combined with the theoretical and methodological outlines, should lead to recommendations for actions. By the end of the workshop, there should be a common ground for further development of HC and sustainable AI.

Expected workshop outcome

The collaboratively developed results from different perspectives will be used for application-oriented research and will thus also find direct use in practical work. By developing a common ground for the design of a sustainable, human-centered working environment with the use of explainable AI, tangible quality criteria can be derived for transfer to the application and thus decisively advance the transformation process of Industry 5.0 into practice. Through the intended subsequent publication of a white paper with short summaries of the workshop's contributions, the extended research community and interested readers will also have the opportunity to benefit from the workshop's results.

Workshop topics

(1) theoretical and methodological frameworks with an emphasis on concepts to specify the normative basis of HC hybrid intelligence at work as they occur in specific/specialized/certain disciplines:

Relevant topics:

- Users' needs for HC-AI
  - What risks are involved in the introduction of AI? How does HC-AI affect the implementation process?
  - How to make the transition to the application of HC-AI? What are the challenges facing such an implementation?
- Different user groups, Trustworthy AI
  - Which user groups/stakeholders need to be addressed by XAI?
  - How to design/implement methods regarding different stakeholders?
  - How can companies be held accountable for XAI? How can "ethics washing" be avoided and the trustworthiness of AI be strengthened?
- Human-computer interaction
  - Which criteria are best suited to evaluate human-centeredness of AI in production environments?
  - What roles do power-dynamics play in the interaction between machine

operator, supervisor and machine? How can they be investigated?
    - How can the level of human-machine-collaboration be measured?
- Explainability/Methods to design a XAI
    - How could Natural Language Explanations/Dialog Systems be designed?
    - How do we evaluate the explainability of AI?
- Green AI and sustainable AI
    - What is the role of AI (and its explainability) in achieving the Sustainable Development Goals?
    - How to design and evaluate sustainable, resource-efficient AI?

(2) use cases with their challenges and/or solution approaches applying XAI methods.
For the second line, we highly appreciated submissions from tandems of researchers and practitioners.

Workshop agenda

The half-day (four and a half hour) workshop is designed as an open and interactive discussion. The workshop is divided into two parts. The poster presentation in the first part serves as the starting point for the subsequent world café format which builds the second part of the workshop.

1. Opening
   The organizing committee will start with the presentation of the Program Chairs and welcome remarks.
2. Poster presentation
   Participants will present and discuss their posters, presented in digital format, on theoretical and methodical frameworks as well as case studies.
   Theory Posters/Studies: Theoretical and methodological frameworks with an emphasis on concepts to specify the normative basis of HC hybrid intelligence at work as they occur in certain disciplines.
   Use Case Posters/Case studies: Challenges and/or solution approaches from practice. Applying XAI methods to practical use cases.
3. Coffee break (10:30 – 11:00)
4. World Café
   Participants, divided into moderated sub-groups, will discuss predefined scientific discourses on an interdisciplinary level at three tables to make the discourse target-oriented and efficient. Thematic focuses of the tables will be the sustainable workplace in the context of AI, design and implementation of human-centered AI and XAI.
5. Interdisciplinary discussion and results
   Moderated presentation, consolidation and discussion of the World Café results with the participants of all three tables. All results will be made available after the workshop in the form of a white paper with short summaries of the workshop contributions.
6. Conclusion
   Summary of the main results, feedback session and closing.

Guidelines to prospective authors

Submission for the Workshop

To participate in the poster presentation of the workshop, the submission of a 'Poster Extended Abstract' (4-6 pages) is requested through the HCII Conference Management System (CMS). Abstracts should also include the names, affiliations, contact data and disciplinary background of the submission team. The abstract submissions should refer to one of the two lines described in section “Workshop topics”.

Submission for the Conference Proceedings

The contributions to be presented in the context of Workshops **will not be automatically** included in the Conference proceedings.

However, after consultation with the Workshop Organizer, authors of accepted workshop proposals that are registered for the conference, are welcome to submit through the HCII Conference Management System (CMS), an extended version of their workshop contribution, to be considered for presentation at the Conference and inclusion in the “Late Breaking Work” conference proceedings, either in the LNCS as a long paper (typically 12 pages, but no less than 10 and no more than 20 pages), or in the CCIS as a short paper (typically 6 pages, but no less than 4 and no more than 8), following peer review.

The submission deadline for the camera-ready papers (long or short) for the “Late Breaking Work” Volumes of the Proceedings is the 23rd of June 2023.

Workshop deadlines

Submission of workshop proposals	8 May 2023
Notification about submission acceptance	22 May 2023
Finalization of Workshop organization and registration of participants	31 May 2023

Note: A workshop participation without a poster presentation is possible but should be announced until May 1, 2023, in order to support the overall workshop planning.

Questions about the workshop can be directed to: woelke@infai.org and anja.brueckner@uni-leipzig.de

Workshop organizers

Christian Zinke-Wehlmann

Christian Zinke-Wehlmann is head of the competence center KMI at the Institute of Applied Informatics at University of Leipzig. He holds a PhD in sociology and focuses his research on sociotechnical support systems at the interfaces between work, (digital) technology, and service systems.

Homepage:
https://kmi-leipzig.de/ueber-uns/dr-christian-zinke-wehlmann/

Angelika C. Bullinger-Hoffmann

Angelika C. Bullinger-Hoffmann holds the Chair of Ergonomics and Innovation Management at Chemnitz University of Technology. She received her doctorate on "Innovation and Ontologies" from the Technical University of Munich and completed her habilitation on "IT-based Interactive Innovation" at the Friedrich-Alexander-University Erlangen-Nuremberg and at the University of Pennsylvania. Her research interests are in the fields of hybrid societies, human-machine interaction, work of the future and leadership. Prof. Bullinger-Hoffmann is the author of over 350 publications. She is a member of the German Academy of Science and Technology – acatech and a member of the Supervisory Board of Paul Hartmann AG.

Homepage:
https://www.tu-chemnitz.de/mb/ArbeitsWiss/professur

Useful links and References

[1] P. C. Verhoef, T. Broekhuizen, Y. Bart, A. Bhattacharya, J. Qi Dong,N. Fabian, M. Haenlein, Digital transformation: A multidisciplinary reflection and research agenda, Journal of Business Research 122 (2021)889–901. doi: 10.1016/j.jbusres.2019.09.022.

[2] F. Hecklau, M. Galeitzke, S. Flachs, H. Kohl: Holistic approach for human resource management in industry 4.0, Procedia CIRP 54 (2016)1–6. doi: 10.1016/j.procir.2016.05.102.

[3] L. Sanneman, J. A. Shah: The Situation Awareness Framework for Explainable AI (SAFE-AI) and Human Factors Considerations for XAI Systems, International Journal of Human–Computer Interaction (2022), 38:18-20, 1772-1788, doi: 10.1080/10447318.2022.2081282.

[4] M. Vössing, N. Kühl, M. Lind, G. Satzger: Designing Transparency for Effective Human-AI Collaboration. Inf Syst Front 24, 877–895 (2022). doi: 10.1007/s10796-022-10284-3.
[5] L. Wang, Z. Liu, A. Liu, F. Tao: Artificial intelligence in product lifecycle management. Int J Adv Manuf Technol (2021), 1–26. doi: 10.1007/s00170-021-06882-1.
[6] B. Shneiderman (2022): Human-Centered AI, New York: Oxford University Press.

Registration regulation

Attendance in the workshops will be available as 'in-person' only. Workshops are 'closed' events, i.e. only authors of accepted workshop proposals, registered for the specific workshop, will be able to attend.

A registration fee of $75 is applicable for workshop participants. Workshop participants who wish to attend the Conference will need to also register for the Conference.

The total number of participants per workshop cannot be less than 8 or exceed 25.