HCI4AI Statement

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The proliferation of artificial intelligence (AI) technologies, systems, and applications is mostly data-driven and computation-driven. The availability of big data and high-performance computer architectures makes the training of complex (deep) networks possible, showing excellent performance in terms of generalization. This is not enough, however, for AI systems that need to interactively communicate with users. In such cases the lack of a user perspective in the design and evaluation approaches might lead to systems that are non-effective regardless of their algorithmic performance. Moreover, recent research on recommender systems has indicated that traditional algorithmic approaches may sometimes provide little practical value and promoted evaluations based on usefulness and more realistic tasks [2].

This increased awareness of the role of HCI aspects in complex AI systems suggests the need to follow a multidisciplinary approach when designing smart tools and artefacts that are meant to be used by people. Design schools have been developing and refining methods that mix education and research, for the purpose of fostering creative moves and rapidly verifying them through confrontation. The so-called basic design can be seen as a form of experimental phenomenology, and the design critique is an effective form of collective evaluation. Other effective forms of evaluation can be based on Wizard of Oz prototypes in which a wizard operator plays some role in a work-in-progress computer system to simulate sensor data, contextual information, or system intelligence [1]. WOz method helps designers of intelligent interactive systems avoid working under an incorrect set of assumptions about potential user behaviors while interacting with the system by letting them explore and evaluate the envisioned technology before investing the considerable development time needed to build a complete prototype. These methods, which are taught and used in interaction design (IxD) classes, should not be neglected when thinking about curricula to educate the designer of smart future artefacts.

If the goal is that of designing people-empowering objects, small data or even isolated examples are often more valuable than large-scale datasets, and explainable learning machines prove to be highly beneficial to users. Good designs elicit skill development and a sense of satisfaction from interaction. The proficient use of an object can be rewarding per se, and even lead to virtuosism or to unexpected extensions of object use. This often emerges from a design-imposed object structure, thus teaching us that design is not approached by learning how most people do certain things. Rather, there are people who embrace a design and develop skills, eventually mastering the object and being gratified through its use.

Customization has been an active research area within human-computer interaction, which has been revamped by machine-learning methods. Ideally, many digital artefacts demand for a well-designed structure accompanied by some degree of adaptability to user idiosyncrasies, which can be mediated by machine learning technologies. AI can be at the service of good design, especially when it facilitates user appropriation of an object.

There is fertile ground at the crossroads between IxD, HCI, and AI [3], and the prompt for exploration can come from education curricula that make the pupils apprehend both design and AI methods, while addressing problems and devising solutions. Such approach is consistent with modern competency-based education, where knowledge acquisition is contextualized and goes together with the development of skills and dispositions.

References

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