Cognitive Biases for the Design of Persuasive Technologies: Uses, Abuses and Ethical Concerns

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ACM Distinguished Lectures Series

`https://speakers.acm.org/lectures/13427`

1 Lecture

In the last decades Human-Computer Interaction (HCI) has started to focus attention on persuasive technologies having the goal of changing users' behavior and attitudes according to a predefined direction. In this talk we show how some of the techniques employed in such technologies trigger some well known cognitive biases by adopting a strategy relying on logical fallacies (i.e. forms of reasoning which are logically invalid but psychologically persuasive). In particular, I will show how the mechanisms reducible to logical fallacies are used to design web and mobile interfaces in domains ranging from the e-commerce to the jihadist propaganda. I will also show how this evidence led to the development of a persuasion matrix unveiling the direct correspondence between fallacious arguments and some of the most common techniques used by the persuasive technologies [Lieto and Vernero, 2013]. Additional experiments have used such matrix to show an effective influence of fallacious-reducible techniques, adopted in web technologies, on human users [Lieto and Vernero, 2014]. The exploration and the relative efficacy of these techniques as digital nudges has been also successfully tested in the context of news recommendation [Gena *et al.*, 2019] and persuasive robots [Augello *et al.*, 2021].

The final part of the talk will be devoted to point out the potential ethical dangers related to the misuse of these techniques in the design of persuasive technologies.

2 Author's short Bio

Antonio Lieto is a researcher in Computer Science at the Department of Computer Science of the University of Turin (Italy) and a Research Associate at the ICAR-CNR Institute in Palermo (Cognitive Systems for Robotics Lab). His research interests include computational models of cognition, commonsense reasoning, language and knowledge technologies. He is the current Vice-President of the Italian Association of Cognitive Sciences (AISC, 2017-2022), the recipient of the "Outstanding BICA Research Award" from the Biologically Inspired Cognitive Architecture Society (USA), and is an ACM Distinguished Speaker on the topics of cognitively inspired AI. He has authored the book "Cognitive Design for Artificial Minds" (Routledge/Taylor and Francis, 2021).

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