The HAI-IO model: A framework for understanding the human-AI communication process

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Abstract

This position paper proposes the human-AI interaction outcomes (HAI-IO) model, a comprehensive framework designed to explore and understand the complex communication process between humans and artificial intelligence (AI) systems. The model incorporates five key concepts: human factors, AI systems, interaction, outcomes, and feedback. Human factors represent the characteristics, expectations, and goals shaping human engagement with AI systems. AI systems encapsulate the technical capabilities and limitations of the technologies facilitating interaction. Interaction characterizes the exchange of inputs and outputs between humans and AI. Outcomes are evaluated based on perceived rewards and costs, including user satisfaction, task performance, and ethical impact. The HAI-IO model offers a holistic perspective on human-AI interaction by capturing the reciprocal and evolving nature of human-AI communication. The HAI-IO model offers a conceptual groundwork for theoretical exploration, practical application, and pedagogical initiatives, paving the way for a more nuanced understanding of human-AI communication in the rapidly evolving technological landscape.

Keywords: HAI-IO, AI, human-AI communication, human-machine communication, social exchange, dialogue systems