AI and Cognitive Assistants in Collaboration

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1. Introduction

In the field of computer science, as well as in the information systems domain, artificial intelligence (AI) constitutes one of the most rapidly growing streams of research. This is mainly due to the fact that technological innovations enable the development of productive AI solutions that provide compelling benefits in various fields of application. Consequently, for example in industry 4.0 or service contexts, machines augment and assist human work or start to take over more and more tasks previously executed by humans.

However, despite the recent advances, we are still far away from a strong or general AI comparable to a human intelligence, especially when it comes to intelligence across certain domains or tasks. Therefore, the importance of the engagement of humans into the decision process of AI systems is widely acknowledged in research and practice. This collaboration between humans and AI systems can take many different forms, and their effectiveness depends on the boundary conditions of a specific collaborative setting as well as various design choices concerning the systems and work practices.

Although a considerable amount of exploration has been conducted regarding such human-AI collaboration, the breadth and scope for dialogue and experimentation needs to be broadened. This minitrack intends to provide a place for such dialogue and support of a diverse community interested in taking the challenge further. The three papers that have been selected provide an excellent starting point for research concerning the collaboration between humans and AI systems.

The first paper *"How May I Help You? – State of the Art and Research Agenda for Chatbots at the Digital Workplace"* examines the question how chatbots can be used as a collaboration tool within the digital workplace of the future. While chatbots can provide an intuitive and easy-to-use natural language human-computer interface, they are not yet widespread in enterprises. In their research paper, the authors aim at surveying the state of the art as well as showing future research topics. Based on a structured literature review, the authors summarize the current state of research in the field, thereby showing that only few first research contributions exist. In addition, they outline current potentials and objectives of chatbot applications. The paper concludes with an outline of research gaps and the formulation of a research agenda.

The second paper *"When a computer speaks institutional talk: Exploring challenges and potentials of virtual assistants in face-to-face advisory services"* explores challenges and potentials of virtual assistants in advisory services while analyzing data from interviews and a workshop with clients and advisors from financial advisory services. Advisory services are a highly sensitive form of collaboration between humans: they rely on a clear distribution of roles between human participants who act according to an implicit set of practices and scripts. As such, they do not offer a specific role to a virtual assistant. At the same time, the technological improvements make the promise that institutional settings may soon be complemented with technology that allows for asking questions using natural speech, understands the context, and provides answers based on online processing of data. Through 24 interviews and comments gathered from a workshop, the authors anticipated reactions and expectations on how virtual assistants should be designed and behave. The findings unveil, that the concerns and hopes of potential users relate to their position and an implicit understanding of what an advisory service is about. This calls for careful and attentive design approach towards virtual assistants in advisory services.

The third paper *"Perceived Intelligence and Perceived Anthropomorphism of Personal Intelligent*

Agents: Scale Development and Validation" within this mini-track aims to develop new measures for assessing personal intelligent agents (PIA). Personal intelligent agents are systems that are autonomous, aware of their environment, continuously learning and adapting to change, able to interact using natural language and capable of completing tasks within a favorable timeframe in a proactive manner. Examples include Siri and Alexa. Several unique characteristics distinguish these agents from other traditional information systems (e.g. intelligence and anthropomorphism). This paper describes the process of developing two new measures with satisfactory psychometric properties that can be adapted by researchers to assess the users' perceptions of intelligence and anthropomorphism of PIAs. The measures are tested using data collected from 193 users with varied experiences with various PIAs.

In sum, the three paper that have been selected for presentation within this mini-track, show the plethora of research avenues that the collaboration between humans and machines holds. We look forward to the presentations of these papers and the discussion around at HICSS 52. Furthermore, we would like to draw attention to a related Special Issue of the journal *Electronic Markets* on *"Hybrid Intelligence in Business Network,"* and we encourage interested researchers to submit their work until May 1st 2019.