

Responsible Innovation in Collaborative, Connected, and Intelligent Systems: Design, Implementation, and Governance

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The proliferation of collaborative and connected systems, including digital tools and platforms that facilitate collaboration, information sharing, and communication among multiple users, has profoundly transformed how we interact, work, and live. The integration of Artificial Intelligence (AI) and other intelligent technologies has ushered in new levels of automation and intelligence, leading to the emergence of AI-enabled collaborative and connected systems. While offering unprecedented possibilities for human-machine collaboration, this integration has concurrently given rise to significant ethical, legal, and societal concerns, which underscore the imperative for the responsible design, development, and use of these systems.

The primary objective of this minitrack is to provide a forum for scholars and practitioners to showcase their research and engage in discussions focused on the responsible design, development, implementation, management, and use of AI-enabled collaborative and connected systems. The minitrack aims to address existing knowledge gaps and challenges associated with the integration of AI and other intelligent technologies in collaborative and connected systems, particularly in the context of human-machine collaboration. This year, three papers have been selected for inclusion in the proceedings.

The first paper, titled "Unraveling the Impact of Visual Cues in Online Portraits on Workers' Employability in Digital Labor Markets" by Yuting Jiang, Matti Rossi, Virpi Tuunainen, Zhao Cai, and Chee-Wee Tan, delves into the pervasive role of online portraits in digital labor markets. The study explores how workers can strategically enhance their employability by manipulating specific visual cues within online portraits. Introducing a non-verbal cues classification model, the research differentiates demographic, physical appearance, image quality, and non-verbal behavioral cues as focal determinants influencing employment status, the number of job

offers received, and rehiring probability. Employing computer vision and deep learning algorithms to analyze 53,950 workers on Upwork.com, the paper conclusively demonstrates the significant impact of visual cues on employability in digital labor markets.

The second paper, titled "Advancing Human-Centred Algorithm Design Through Reflective Practice" by Kaspar Raats, addresses challenges in the design of autonomous vehicle (AV) algorithms. The paper advocates for a shift towards a more responsible human-centered algorithm design (HCAD) by demonstrating various reflective practice qualities acquired through engaging algorithm designers from four companies with ethnographic materials. The study shows that employing a Design Ethnographic (DE) approach enables developers to consider the value of AVs from sociotechnical perspectives. This approach fosters collaborative learning and debates about solving problems that genuinely contribute to societal value. The paper underscores how ethnographically infused HCAD expands opportunities for algorithm developers to participate responsibly in value co-creation for society.

The third paper, titled "Exploring Public Opinion on Responsible AI Through The Lens of Cultural Consensus Theory," authored by Necdet Gurkan and Jordan Suchow, investigates the growing societal implications of Artificial Intelligence (AI). The paper emphasizes the necessity of public engagement in AI development and governance processes. Applying Cultural Consensus Theory (CCT) to a nationally representative survey dataset on AI in the United States, the research identifies shared and contrasting views on responsible AI. The findings serve as crucial reference points for developers and policymakers, aiding them in considering individual variances and group-level cultural perspectives when making significant decisions and addressing public concerns in the realm of responsible AI.