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Title
Artificial intelligence as …?" How do radiologists frame AI (in) capabilities in relation to their knowledge work?

Abstract
Artificial intelligence (AI) has entered various professions. As a distinguishing character, AI is a technology that has 'knowing' claims: (pretending) for understanding the world and solving problems. With their knowing claims, AI applications seem to transform the knowledge work, which has historically been exclusive to human experts.

However, given the emergent nature of AI, the way technology is getting shape and embedded into work practices depends on how professionals perceive it in relation to their knowing practices. In particular, we are interested in understanding how professionals perceive AI as a new technology with knowing claims, and perceive its impacts on their knowledge work.

We studied radiology profession as a rich case, where the perceptual and cognitive nature of practices lends itself to major transformations by AI. Relying on socio-cognitive perspectives of professional knowledge, we examined how various radiologists frame AI as a technology that can participate in 'constructing medical facts (extracting medical information from radiological images)', 'applying these facts into answering medical questions (diagnosing the medical images)', and 'legitimizing the knowledge claims (e.g., justifying and assuring the validity of the medical diagnosing and reporting them)'.

Based on our analysis of 80 radiologists' accounts (from different backgrounds, specializations, seniority levels, and experiences with AI), we identified six distinct ways of framing AI: as 'Holy Ghost', 'Telescope', 'SPSS', 'Assistant', 'Tesla car', and 'Colleague'. We show that understanding the images that professionals have about AI helps us understand (and partially explain) the various ways in which they 1) characterize the (in)capabilities of AI for making knowing claims and 2) reframe their accounts of their knowledge work. We discuss the implications of our findings for understanding the socio-cognitive interactions between the AI developer and user communities in the context of transforming knowledge work.