

Unravelling AI imaginaries in radiomics: Beyond exoticism, mentalism, and technologism

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Sociotechnical imaginaries of ‘AI’ in healthcare are embodied in the design and practical implementation of AI-based technologies. Our paper is based on STS studies in radiomics (see, e.g., [1], for an overview), a new field of medical imaging analysis that involves extracting large-scale quantitative features using machine-learning (ML) algorithms. Specifically, we have been studying how radiomics is taught – formally and informally – among medical professionals and students at a university hospital in Switzerland, and how novice users interact with the radiomics platform QuantImage ([2]; [3]). The platform allows for the extraction of several types of features from PET/CT images, providing a simple environment that can be further adjusted for more refined analyses. It enables clinical researchers with no programming background to develop and validate radiomics models using their own data, which can be easily exported from the hospital information system. QuantImage, initially designed as a tool for radiomics research, is currently being repurposed for education in this emerging field. Although the platform itself does not produce communicative actions, our findings show that autonomous agency is routinely ascribed by the participants to the machine, even though it functions as an object rather than an agent [4].

In this paper, building on our studies in radiomics and earlier work on AI imaginaries [5], we critically disentangle three aspects of sociotechnical imaginaries involved in teaching for and about AI in healthcare: *exoticism*, *mentalist*, and *technologism*. First, most of the existing insights and ways of working are obtained from settings in which AI has not yet been incorporated into the routine structures of everyday life, but is rather seen as a novel and unusual object (cf. [6]). The *exoticist* framing of AI in radiomics uncovers tension with the mundane work routines in which it is eventually embedded. Second, much of the social studies of AI reproduce (intentionally or not) the mentalist conception of AI, based on cognitivist notions of thinking, intelligence, or learning (cf. [7]). Such *mentalist* of AI in radiomics is connected to the imagery of an isolated single user taking part in individualized ‘human–AI interactions’. Third, it is taken for granted that AI is a form of computational technology: AI and its manifestations – e.g., algorithms, neural networks or ML processes – are located inside the machine. Social imaginaries consist of *technologist* ‘use

cases/scenarios' that are produced to provide an optimal environment for the technology's operation. Against the backdrop of the three aspects, we will propose a reformulation of AI in healthcare that starts from the publicly observable, situated, embodied conduct in the world of daily life and professional activity, avoiding both the "academic and theoretical imperialism" [8] and the imperialism of computing [9]. More generally, we will argue that AI is not 'inside the machines' but emerges from the situated organization of social events in which an agentive artifact's self-sufficiency is constituted and maintained.

REFERENCES

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