



# Beyond Anthropomorphism

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## 1 Interdisciplinary explorations beyond anthropomorphism

Anthropomorphism is implicit in social robotics, as the very term attributes robots with the human capacity to be social. However, this concept, metaphor or analogy is not simple. Is anthropomorphism a practice of deception or even blasphemy? Is it a distortion of human perception: a form of psychological misrecognition? Or is creating anthropomorphic images and artefacts an almost universal human practice across many cultures in art and ritual? Is it a way of making sense of what it means to be human or to be social? Is anthropomorphism an instrumental solution to integrating a robot into the built environment or social spaces? Does it set users' expectations and encourage a people to accept it? Or can it backfire and create unrealistic expectations? Do people read anthropomorphic behaviours interpersonally or semiotically? We might also ask what the roles of a robot's voice, eyes, face, gesture or movement are in allowing a robot to interact socially.

In this special issue, authors from several disciplines explore anthropomorphism. Clearly, anthropomorphism is not always reducible to appearance or physical resemblance. Robots are attributed human-like social roles, such as an artist, a companion, or something capable of humanistic care. Robots may be archetypes in science fiction, such as bud-dies, machines, infrastructures, or humans. Projecting some

degree of anthropomorphism may be inevitable in human relations with autonomous systems. Several authors argue that anthropomorphism should be understood as a relation rather than an inherent quality, and what seems to be autonomy must be understood in its spatial, interpersonal, and cultural context.

The first article takes a philosophy of technology approach, identifying two problematic tendencies in robotic anthropomorphism: 'naïve instrumentalism' and 'uncritical posthumanism', proposing instead a hermeneutic, relational, and critical approach. The author argues that robots must be considered in relation to human activity and institutions and associated with its political and cultural milieux.

The second article draws on social psychology to explore peoples' tendency to project human characteristics onto robots, arguing that this anthropomorphism should be understood as socially situated in discourse, mythology, and popular culture. However, the author argues that making artefacts that appear human-like seems universal, but it emerges differently in different cultures, including in humanoid robots. The author argues that anthropomorphic robots may be seen as one among many ways in which humanity has a dialogue with itself.

The third article explores visual culture practices in which robotics in fiction and engineering reproduce or remediate the human eye. First, science fiction often exploits visceral anxieties about the fragility of the human eye. In sci-fi nightmares, the human and machine body parts become interchangeable but not without uncanniness and wounding. Second, it argues that when electronic sensor technologies extend the visual field, they reconfigure the embodied phenomenology of vision. For example, infrared cameras, lidar, radar and so on serve to extend the human sensorium and remediate social relationships. Third, the exchange of human and non-human gazes necessarily establishes forms of power relation.

The fourth article looks at Ai-Da, a realistic robot artwork that itself performs as an artist, using a robotic arm to draw portraits. The author proposes some limits on imagining the robot's status as an artist. The author rejects the tendency

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towards individuation of the robot, which results in presentation strategies that portray the robot as an electronic persona. Therefore, robot should be considered always to be relational rather than autonomous. The author also avoids attributing the robot intentions by describing the robot as ‘drawing’ rather than ‘creating’ an artwork. She also stresses the affective role of the android’s moving physical body and face in the visitor’s experience of its art-making practice.

The fifth article reframes the question of anthropomorphism by asking whether robots are capable of humanistic care. Should robots be designed to perform as caregivers, or is this inherently problematic and alienating? Beyond the question of whether it is replacing human care, could and should a well-designed android be capable of more than functional caring?

While most people would associate sex robots with purely physical relationships, the promotion of some models suggests that they go beyond this towards offering its owner companionship. The sixth article uses a social semiotic and visual discourse analysis approach to explore how promotional, journalistic, and social media videos use the meanings of companionship in representing sex robots. The author argues that the videos suggest that robots and their owners can be mutually vulnerable and supportive, reliably giving each other attention every day, and even forming long-term commitments.

Where most of the articles in this issue employ humanities approaches to robots, the seventh article employs a computational approach to the analysis of science fiction novels, comics, plays and movies. The authors argue that sci-fi has been influential in fostering perceptions, concepts and even designs for robots, sometimes unfortunately serving to establish or reinforce misleading stereotypes, such as the fear of robots going out of control. Against this, they propose that sci-fi should more often represent robots as non-human ‘buddies’ that can cooperate with humans.

The eighth and final article focuses on robots in military argues that anthropomorphism is commonplace in the

‘hybrid military teams’ that have emerged when military units have adopted robots. It evaluates the instrumental value of embodied social cognition in emergent affective relationships with robots that are either implicitly or explicitly anthropomorphic.

This special issue will interest readers from the humanities, design, social sciences, and engineering, who will find value in the critical, interpretive, and instrumental insights across of the articles. This issue addresses questions that are increasingly of public interest, considering recent innovations in hardware and software, lower costs, and growth in the market for social and service robots. Addressing the question of robotic anthropomorphism will remain critical for those creating, researching, regulating, and purchasing social robots. While it is unlikely we will ever escape anthropomorphism, we can build a better conceptual and empirical understanding of it.

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