

# Machine Gaze: self-identification through play with a computer vision enabled interactive robot

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## Abstract

Self-awareness is an adaptation that children begin to develop when they associate images, abilities, and preferences with themselves. While such “construction of the self” is deemed to consolidate around the “Identification” and “Permanence” stages of self-development (Rochat), this construction continues throughout adult life as we constantly cycle through different levels of self-awareness, seeking to redefine and reinvent ourselves. The modern technological innovations of screens and artificial intelligence threatens to alter our sequence of self-awareness development, because children and adults are exposed to machines, tele-presences, and digital systems that increasingly become part of human identity. We take up avatars, invent digital lives, and augment ourselves with digital imprints that depart from reality, making the development of self-identification adjust to digital technology that blur the boundary between us and the devices we use. To empower children and adults to see themselves and artificially intelligent machines as separately aware entities, we created the persona of a salvaged supermarket security camera refurbished and enhanced with the power of computer vision to detect human faces and project them on a large-scale 3D face sculpture. Built at the New York Hall of Science, the surveillance camera system moves its head to point to human faces at times, but at other times, humans have to get its attention by moving to its vicinity, creating a dynamic where audiences attempt to see their own faces on the sculpture by gazing into the machine’s eye. We found that audiences began to gain an understanding that machines that interpret our faces are separate from our identities, with their own agendas and agencies that show through the way they temperamentally interact with us, that the machine-projected images of us are their own interpretation rather than our own, distancing us from our digital analogs. In the accompanying workshop, participants learn about how computer vision works and puts on disguises in order to escape from the algorithm detecting them as the same person by analyzing their faces. Participants learn that their own agency affects how machines interpret them, gaining an appreciation for the way their own identities and machines’ awareness of them can be separate entities that can be manipulated for play. Together the installation and workshop empower children and adults to think beyond identification with digital technology to recognize the machine’s own interpretive abilities that lie separate from human being’s own self-awareness.

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