

Robotic Art: Perceiving and Inventing Reality F Ghedini, M Bergamasco, PERCRO Laboratory, Scuola Superiore Sant'Anna, Pisa, Italy.

Various studies have demonstrated that our relation with machines is both natural and social, but still little is known about how human-robot interaction is influenced by the emotional responses that a robot evokes in the user. What are the brain mechanisms triggering empathy, trust, uncanniness, etc. towards an assembly of mechanical pieces? How can a moving object suspend our disbelief, just as would a literary character? How does our brain identify a robotic agent as "living", ascribing it personality and feelings? And how do its shape, movements and behaviours contribute to such a perception? The hypothesis of my research is that, through the analysis of artworks exploiting robotics as a medium and experiments on individuals confronted with them, a novel point of view on related brain mechanisms can be developed leading to new propositions for robot design.

Artistic experiences exploiting robotics as a medium give us insight about how we interpret movements and reactions as emotions or specific behaviours, and how we "invent" the causality of our acts and presence in an environment. It would be misleading to assimilate this phenomenon to an illusion, or worst, a trick; it is rather an example of how robotic artists are paving the way to a better understanding of how the brain "invents" the reality surrounding us, since their work lays its foundation on the fact that the brain is a creativity machine, or a storyteller, inventing external reality, including emotional reality.