

Thermal infrared imaging reveals that 6-12 month-old babies show different autonomic response to interaction with robot and avatar

by C. Filippini*, D. Cardone*, D. Perpetuini*, A.M. Chiarelli*, L. A. Petitto** and A. Merla*

* Department of Neurosciences, Imaging and Clinical Sciences, University G. d'Annunzio of Chieti-Pescara, Italy

** NSF Science of Learning Center, Visual Language and Visual Learning, VL2 ; PhD in Educational Neuroscience (PEN) program, Gallaudet University, Washington, DC, USA

Abstract

From birth, infants are immersed in a social environment, often surrounded by artificial intelligent agents (AIAs). However, there is a significant paucity of work on infants' psychophysiological responses, and their related interest, when interacting with AIAs. In this study, the psychophysiological responses of infants during interactions with an embodied robot and a virtual human (avatar) presented on a screen are investigated. Understanding infants' psychophysiological/emotional responses to AIAs provides important new knowledge regarding how AIAs can impact infants' lives during the first year of life, which is a period of critical importance for human learning, especially emotional, social, and language learning and higher cognitive growth.