Equality and Hierarchy in Human-Robot Interaction

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Advancements in artificial intelligence and robotics have created opportunities for robots to evolve into more socially-oriented agents. Because of this many relationships between robots and humans have shifted towards partnership. In order to create these partnerships and have them be accepted by the human partners, the robotic system must interact in a way that is synonymous with the human's relationship with other humans. This creates the need to explore factors such as culture, personality, and cognition, which may affect human perception of robots. Our discussion focuses on cultural challenges, specifically regarding equality and hierarchy in human-robot relationships.

In recent years, it has become increasingly clear that cultural constructs affect humans' perception and interaction with robots. For example, it has been found that national culture relates to attitudes toward robots (Bartneck, Suzuki, Kanda, and Nomura 2007). This connection may also be extended to humans' satisfaction and trust in their robot counterparts (Li, Rau, and Li 2010). Despite their usefulness in defining human-robot relationships, these findings are limited in that they treat each cultural construct as a separate entity. Humans' perception and interaction with robots may be more completely understood if explored at the intersection of multiple cultural constructs.

In the literature surrounding culture and its measurement, the joining of two common concepts, individualism/collectivism and power distance, has been explored in order to establish more intricate dimensions of culture. While the intersection of these concepts has been explored in human-human interaction, there remains much to be learned regarding their application to human-robot interaction. We therefore seek to examine these dimensions and propose ways in which they may apply to human-robot interaction. In order to do so, we will first define national culture and explore how it affects human-robot interaction. We will then explore individualism/collectivism and power distance and their respective effects on human-robot interaction. Finally, we will explore the merging of these two concepts how the resulting dimensions may impact human-robot interaction.