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Persuasion – in Famous CEOs and in Robots

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Abstract

"Are we free to make our own decisions?" The question of whether and how to influence the attitudes and behavior of people is probably as old as mankind itself. However, it is no longer only a major question in politics and psychology. Due to modern economic structures, mass media and the growing use of technology in everyday life, the issue of "persuasion" becomes relevant in far larger and more interdisciplinary contexts. This is illustrated below in an example that combines research from the areas of business communication and human-robot interaction.

What is persuasion?

Persuasion refers to the act of attempting to change the attitude and/or behaviour of other people. At IRCA we work with persuasion in a number of different ways; for instance, we investigate what makes public speeches particularly persuasive or how robots can make use of persuasive techniques to steer people into a particular behaviour, for instance, to use less energy when doing their laundry.

Persuasion in the Speech Melody

One line of our interdisciplinary research on persuasiveness bridges the widely neglected gap between phonetics on the one hand and economics on the other by scrutinizing how speech melody contributes to the perception of charisma, leadership and credibility. By analysing production presentations videos, we create acoustic-prosodic profiles of famous CEOs like Steve Jobs, a person widely known for his charisma and persuasiveness, and Marc Zuckerberg, who may be considered a counterpart of Steve Jobs in terms of charisma and persuasiveness. The results of this acoustic profiling provide the basis for perception experiments in which we manipulate and vary signal variables of the speech signals according to the differences between, for example, Steve Jobs and Mark Zuckerberg. After having gained a better understanding of how different patterns and building blocks of speech melody can subtly influence listeners' opinions and decisions about people and products, the further goal of our line of research is to use this understanding in order to investigate the potential links between speech melody and creativity. Questions are, for instance, if and in which way creativity can be detected and quantified in speech, and whether speech utterances can be produced by speakers or manipulated hereafter such that they trigger creativity in listeners. The results of this line of research, to which we gave the name PERCY (i.e. persuasiveness and creativity), will be a big step forward in the deliberate and targeted use of speech as an instrument for marketing/advertisement purposes, as a catalyst in efficiency or innovation processes in companies, and as a "diagnostic signal" in business communication or job interviews.

Persuasive Speech in Human-Robot Interaction

At the Human-Robot Interaction Lab (HRI-Lab) we investigate how different models of persuasion from human-human communica-

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tion work (see above) in interactions with robots, specifically with so-called social robots – robots intended to interact with humans, using natural language. Our work is based on the realization that persuasion is deeply embedded in nearly all social interaction between humans, so for autonomous agents, such as robots this means that they need to be designed with the ability to take persuasive techniques in use to operate appropriately in a social environment. The work is highly interdisciplinary and to bridges together fields such as linguistics, phonetics, engineering, psychology and philosophy. Currently, our research focuses is on how phonetic manipulations of computer-synthesized speech can influence a robot's persuasiveness, and how the simultaneous use of multiple modalities, for example speech, gesture and movement, can make people more compliant towards a robot. The goal with this line of research is to contribute to the development of social robots so that they act efficiently according to the task they are intended to carry out, but doing so in socially appropriate ways.

When we combine our work on human-robot interaction with our work on persuasiveness in speech, we can take those 'diagnostic signals' that emerge from the prosodic analysis and create computer-synthesized utterances, where one set of utterances makes use of these 'diagnostic signals' whereas the other does not. Then we use two identical robots, like the Keepon, and have one suggest a sightseeing event using the persuasive features and the other suggesting another event using 'normal' utterances. Then we check whether people choose more often the sightseeing events suggested by the 'persuasive' robot.

The results then do not only support the previous analysis, but they also indicate what behaviour a robot should produce when it tries to make people use less detergent when they fill their washing machine.