

Multidisciplinary Collaboration on Human-Robot Interactions - A Case Study of Center of Innovation USWPS

(COINs 2019 - Extended Abstract)

Can human sciences work closely with computer sciences? A lot!

Why this collaboration among different disciplines is so important? Despite numerous works in AI and robotics towards human-robot interactions and a whole new field of research on affective computing (25 years now), robots still lack of processing emotional communication on a level satisfactory for humans, often they completely ignore human emotional input of feedback or their reaction is completely unnatural for humans. They lack of human-level affective processing, and... their jokes are never funny. At the same time social robots are introduced to our home environments, schools, care facilities, offices.

The Center for Innovation at the University of Social Sciences and Humanities (USWPS) was established in 2016 with a goal to be a conduit between the world of science and the community, including business, cultural, and social groups. Since then it has participated in several interdisciplinary projects connecting science and industry as well as psychology, artificial intelligence and other fields of research. Projects are done together with private companies, other universities and research institutions and are often funded by research grants. One example is a research project led by private entity and funded by the National Center for Research and Development (NCBiR) combining Psychology, Artificial Intelligence, Data Science and industry partners.

The Center for Innovation at USWPS works also with social partners and NGO's. An example is cooperation with Kaminski Foundation (famous polish traveler and explorer) in the context of its AINTE Project - "No trace expedition". Marek Kaminski will be traveling around the world, visiting over 20 countries within electric car accompanied with the social robot NOA. This expedition will serve as a base for studying human-robot interactions in multicultural environment across all the countries that will be visited including proxemics. The Center is also involved in projects led by private entities. In example of the projects aim to study people's aesthetic preferences in the area of online marketing. This project is financed by National Center of Research and Development and the team consists of psychologists, sociologists, data scientists and AI researchers. One of the goals is to build an AI model that predicts people's preferences.

Another team that has been formed in 2019 consists of researchers of USWPS, Kozminski University, MIT and PJATK covering research areas of cognitive sciences, psychology, sociology, philosophy, robotics and artificial intelligence. This team proposed an innovative project aiming to study the impact on humans by interactions between them and social robots.

Last example is an interdisciplinary PhD research on automatic emotional model for a social robot that can be automatically train through dyadic interactions with humans. The goal is to improve human-robot communication in two ways: 1) better understanding humans by robots and modulating robots' behavior, 2) better understanding robots by humans and increase the likeability on Godspeed scale (Bartneck) in long-term interactions.