

Natural Language interaction with the Television

Jorge Abreu¹, Pedro Almeida¹, Pedro Beça¹, Juliana Camargo¹, Tiffany Marques¹, Rita Santos¹, Telmo Silva¹

Under the CHIC mobilizing project (pilot B3 – 24498), the ITV Social Research Group of DigiMedia Research Unit developed, in partnership with Altice Labs, a complete Natural Language Interaction (NLI) solution for interactive television. This solution aims to optimize the user experience (UX), namely at the interaction level while searching for audiovisual content, overcoming the need of inserting text using a remote control. In addition, by adopting a conversational approach rather than simple voice commands, it was possible to achieve a more intuitive and natural mode of interaction, since users do not need to navigate between complex menus and interfaces.

The key performance indicators (KPI) of this solution focused on its suitability to the television lexicon, robustness to noise, provided UX, and on the implementation in Set-Top Boxes of the IPTV service of MEO allowing a dynamization of a Field Trial (FT). To ensure good efficiency of the NLI system, a continuous improvement process was adopted, divided into two phases of the FT, in which problems/bugs were identified and fixed and natural and diversified utterances were collected to train the Natural Language Understanding (NLU) module. During the FT, the training process of the NLU involved the collection of a total of 3969 utterances, from a total of 13.000 interactions with the developed system.

The team of the University of Aveiro had a strong involvement in the Field Trial, in the training process, and in the implementation of UX promoting features: conversational dynamics, creation of decoys, disambiguation of requests, supporting of trending TV content, and creation of scenarios for the continuity of the viewer experience, in which the system interacts proactively, for example when a user fell asleep watching a TV show.

¹ – Department of Communication and Art & DigiMedia, University of Aveiro

FIGURE 1

User interacts with the system from an application that accepts voice commands.

FIGURE 2

The system also allows interaction by voice using a TV remote control.

