Creation of a Virtual Assistant for the Elderly Using Artificial Intelligence Systems

Urban, Markus (School: Institut Joan Brudieu)

Cati is a virtual assistant specifically designed for elderly people. By integrating different artificial intelligence systems (speech recognition, natural language processing and speech synthesis), Cati aims to help integrate elderly people into digital society, facilitate their access to useful and relevant content in their daily life, and prevent their isolation by allowing them to communicate with their families. The interface is simple and minimalistic and was designed in web format. The back end has been developed in Python and is responsible for coordinating the whole system. It also acts as a communication path between the interface and the external services. To speed up the response time of the assistant, a new communication system between the back end and the user interface has been developed. It was named "Virtual Keystroke Communication System" and it accelerates the sending of information from Python to JavaScript, by using the virtual keyboard of computers and detecting the keys pressed from JavaScript. The various applications that have been incorporated into the assistant are the result of talking to elderly people in my environment and finding out about their needs: making video calls, listening to music, and searching for recipes, among others. The assistant has been trained in the Catalan language as there are no commercial virtual assistants that can interact fully in Catalan. To train the language interpretation model, multiple sentences related to each of the available applications have been elaborated and classified according to the function to which they correspond. The technology could be easily translated into other languages and combined with an appropriate physical system to improve the lives of older people around the world.

Awards Won:

University of Texas at Dallas: Back-up scholarship recipients