

VITHEA: Virtual therapist for aphasia treatment

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Aphasia is a particular type of communication disorder caused by the damage of one or more language areas of the brain affecting various speech and language functionalities. Cerebral vascular accidents are one of the most common causes. A frequent syndrome among aphasia patients is the difficulty to recall names or words. Typically, word retrieval problems can be treated through word naming therapeutic exercises. In fact, frequency and intensity of speech therapy is a key factor in the recovery of lost communication functionalities. In this sense, speech and language technology can have a relevant contribution to the development of automatic therapy methods.

VITHEA is an on-line platform designed to act as a “virtual therapist” for the treatment of Portuguese speaking aphasic patients. Concretely, the system integrates automatic speech recognition technology to provide word naming exercises to individuals with lost or reduced word naming ability. The adopted solution is based on a keyword spotting approach that validates the correctness of what was said by the patient. The program provides feedback both as a written solution and as a spoken message produced by an animated agent using text-to-speech synthesis. The application allows the easy addition of new therapy exercises and provides tools for the therapists to remotely track the recovery of the patients.

The VITHEA platform is the result of the joint effort by the the Spoken Language Processing Lab of INESC-ID (L2F) and the Language Research Laboratory of the Lisbon Faculty of Medicine (LEL) in the context of the activities of an FCT funded project. More information is available at <http://www.vithea.org>