

# Arabic Natural Language Processing: Framework For Translative Technology For Children With Hearing Impairments

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*Amal Dandashi, Msc; Abdelghani Karkar; Jihad Aljaam*

## CORRESPONDING AUTHOR :

amaldandashi@gmail.com

Qatar University, Doha, Qatar

## Abstract

Children with hearing impairments (HI) often face many educational, communicational and societal challenges. Arabic Natural Language Processing can be used to develop several key technologies that may alleviate cognitive and language learning difficulties children with HI face in the Arab world. In this study, we propose a system design that provides the following component functionalities: (1) Multimedia translation elements that can be dynamically generated based on Arabic text, (2) 3D Avatar based text-to-video translation (from Arabic text to Qatari Sign Language), involving manual and non manual signals, (3) Emergency phone based system that translates Arabic text to Qatari Sign Language Video and vice versa, and (4) Multi component system designed to be mobilized and used on various platforms. This system involves the use of Arabic Natural Language Processing, Arabic word and video Ontologies, and customized engine querying. The objective of the presented system framework is to provide translational and cognitive assistive technology to individuals with HI and empower their autonomous capacities.