

Title of the doctoral program

Computer and control engineering

Title of the research activity

A communication system for deafblind people

Short description of the research activity

The principle is to create a system able to transfer sign language from one point to another, in such a way that a Deafblind remote receiver can understand what is signed from a remote signer. The signer communicates resorting to sign language; the system captures it, and provides the output in tactual sign language. The output is sent through the web and received by the receiver that can understand it by touching an interface based on anthropomorphic robotic arms and hands. The tactual sign language is synthesized by means of movements of arms, palm and fingers. Summarizing, the final object is to capture and remote transfer the message produced by the signer in such a way that it can be represented using low cost and anthropomorphic interfaces. Indeed, the project poses the basis for the first worldwide level experimentation of a “telephone for deafblind people”. For this purpose, this project is not dealing with issues related to semantic and syntactic signs recognition; in fact, these should be addressed only while considering transpositions between different languages (e.g. translation between spoken Italian language and written versions of Italian Sign Language).

During his PhD activities, the candidate should investigate and solve issues related to: real-time signal processing, vision-based pose estimation, hand tracking, anthropomorphic robotic interfaces, human-robot interfaces, tests with deafblind users and interpreters.

Scientific responsible (name, surname, role, email)Paolo Prinetto, Full Professor, paolo.prinetto@polito.it**Number of vacancies for XXXI cycle (3 years program)**

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Specific requirements (experiences, skills)

Basic skills in programming (eg, Python, Matlab) are required. Knowledge, or previous experience, with Computer Vision, Human Computer Interface and Robotics will be an asset.

Website of the research group (if any)www.testgroup.polito.itwww.parloma.com