Title (tentative): Development of locomotor primitives in blind children

Thesis advisor(s): Sabatini Silvio P., Dr. Monica Gori (IIT), Dr. Sara Finocchietti (IIT)

E-mail: silvio.sabatini@unige.it

Address: Via All'Opera Pia, 13 - 16145 Genova Via Opera Pia 13 (III piano)

Phone: (+39) 010353 - 2092

**Description**

**Motivation and application domain**
Visually impaired children show developmental delays in several motor skills. Sighted toddlers acquire two specific gait patterns in the first 12-18 months that allow them to walk. However, it is unknown if/how these 2 additional patterns are developed in blind children and if a specific multisensory training could help for the development of the gait patterns. Application domain: neurophysiology of movement, neurorehabilitation.

**General objectives and main activities**
The study aims to define if/when blind children develop the two above specified gait patterns. The student will carry out measurements on blind and healthy aged matched sighted children. He/she will analyze the data and provide the discussion of the results.

**Training Objectives (technical/analytical tools, experimental methodologies)**
Technical tools: Cinematic data acquisition and analysis via a motion capture system (VICON), sEMG data acquisition and analysis. Analysis of muscle synergies. Experimental methodologies: Development of an experimental protocol, data acquisition, literature review, interaction with patient populations.

**Place(s) where the thesis work will be carried out:** Italian Institute of Technology, Genoa

**Additional information**
Pre-requisite abilities/skills: basic knowledge of neurophysiology and rehabilitation

Maximum number of students: 1