

## **RESEARCH PROGRAMME NR 1**

### **NR. 1 grant – Duration years: 1**

**Title:** Vision-based control of binocular eye movements for tracking moving objects

**Description:** The research activity relates to the design and the implementation of a trinocular robotic vision system to be used in surveillance applications with attention-driven camera control. The system will be able to move the fixation point on a moving target detected from the wide-field fixed camera images. The research will focus on the development of object-oriented software modules for the coordinated control of version and vergence eye movements on stationary and moving objects. Both saccade and smooth-pursuit behaviors will be considered

**Subject Division:** INF/01 INFORMATICS

**Department:** Dipartimento di Ingegneria Biofisica ed Elettronica (DIBE)

**Requested Study Title:** Research doctorate in Tecnologie Umanoidi o in Informatica

or

Degree in Bioingegneria or in Informatica with curriculum proving good skills on the following topics: (1) control of a binocular robotic head (version, vergence and tilt eye movements for gazing and tracking an object), (2) exploiting of Vestibular Ocular Reflex for better visual perception, and (3) DSP programming

**Subjects of interview:** Algorithms for object tracking and fixation; algorithms for the focusing and zooming of motorized optics; techniques for the acquisition and processing of video binocular sequences; object oriented programming techniques. Knowledge of English language.