



The Karlsruhe Humanoid Head

The Karlsruhe humanoid head was consistently used in ARMAR-IIIa and ARMAR-IIIb. It is a stand-alone robot head for studying various visual perception tasks in the context of object recognition and human-robot interaction. The active stereo head has a total number of 7 DOFs (4 in the neck and 3 in the eyes), six microphones and a 6D inertial sensor. Each eye is equipped with two digital color cameras, one with a wide-angle lens for peripheral vision and one with a narrow-angle lens for foveal vision to allow simple visuo-motor behaviors. The software was originally written in MCA but can also be controlled via the robot development environment ArmarX (<https://armarx.humanoids.kit.edu>).

Key Features

- Six channel microphone system
- Seven degrees of freedom (DoF)
- Foveated stereo camera system
- Inertial system

Possible Applications

- Human-robot interaction and communication
- Active vision
- Active visual search
- Gaze stabilization
- Multimodal attention (audio, vision)



Access information

Corresponding infrastructure	Karlsruhe Institute of Technology Institute of Anthropomatics and Robotics - High Performance Humanoid Technologies Lab (IAR H2T)
Location	Adenauerring 2, 76131 Karlsruhe, Germany
Unit of access	Working day

Technical specifications

Actuator	DC Motor and Harmonic Drives
Camera	Four Point Grey Dragonfly2 color cameras (460×480@60Hz)
Inertial system	Xsens MTIx gyroscope-based orientation sensor
Auditory system	Six microphones (SONY ECMC115.CE7)
DoF	7
Software	MCA or ArmarX



Additional information

Additional Information available [here](#) and [here](#).