ROBotic Open-architecture Technology for
Cognition, Understanding and Behavior

Cogsys
Cognitive Systems

Project No. 004370

RobotCub

Development of a Cognitive Humanoid Cub

Instrument: Integrated Project
Thematic Priority: IST - Cognitive Systems

D9.4 Open Call for Proposals

Due date: **01/09/2007**
Submission Date: **01/09/2007**

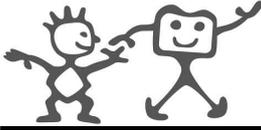Start date of project: **01/09/2004**   Duration: **60 months**

Organisation name of lead contractor for this deliverable: **University of Genoa**

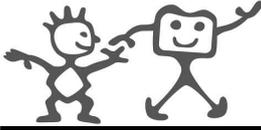Responsible Person: **David Vernon**

Revision: **1.0**

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)	
Dissemination Level	
PU	Public	**PU**
PP	Restricted to other programme participants (including the Commission Service)	
RE	Restricted to a group specified by the consortium (including the Commission Service)	
CO	Confidential, only for members of the consortium (including the Commission Service)	

Purpose of this Document

This deliverable contains the text of the open call to invite proposals for projects which focus on using the iCub for embodied artificial cognitive systems research. This call was published on the RobotCub website on the 1st September 2007 (see `http://www.robotcub.org/`).
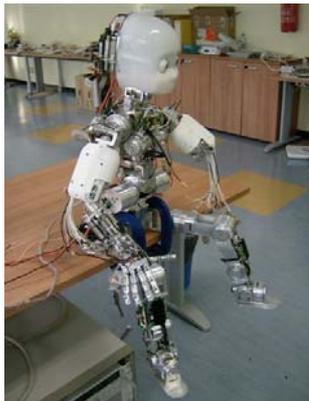
iCub

Cognitive Humanoid Robot
Research Platform

Call for Proposals

The iCub is a 53 degree-of-freedom cognitive humanoid robot which has been developed as an open-systems research platform. This call invites proposals for projects which focus on using the iCub for embodied artificial cognitive systems research.

The iCub is the result of a collaborative project funded by the European Commission, Project IST-004370 RobotCub, under Strategic Objective 2.3.2.4: Cognitive Systems.

At 104 cm tall, the iCub is approximately the size of a three year-old child. It will be able to crawl on all fours and sit up, its hands will allow dexterous manipulation, and its head and eyes are fully articulated. It has visual, vestibular, auditory, and haptic sensory capabilities. As an open system, the design and documentation of all hardware and software is licensed under the Free Software Foundation GNU licences so that the system can be freely replicated and customized.

An iCub kit will be awarded each of the applicants who submit the eight best proposals. In addition, each successful applicant will be awarded travel & accommodation costs at the Italian Institute of Technology in Genoa for one person for a two-month period to participate in the supervised assembly of the robot. Shipping costs of the assembled iCub to the applicant's host institute will also be covered.

Date of publication of call: 1st September 2007.

Deadline for receipt of proposals: 1st December 2007.

The iCub Award

Successful applicants will be awarded the following:

- A complete iCub kit, including machined parts, motors, sensors, and associated control & interface electronics, including an embedded PC104 computer;
- Reimbursement of travel & accommodation costs for one person for a period of two months to participate in the supervised assembly of the robot at the Italian Institute of Technology in Genoa;
- Shipping costs of the assembled iCub to the applicant's host institute;

The award will *not* include the following:

- The remote computer platform required to run the iCub software;
- Any running or maintenance costs;
- Any other costs incurred by the applicant in using the iCub or in pursuing the research programme set out in the proposal.

Software for the iCub is freely available for download from the iCub repository. See *Useful Links* below for an overview of the software that has been developed to date. Please bear in mind that the iCub is a work in progress and the software capabilities are minimal at present: however, more capabilities are continually being added.

It is not envisaged that successful applicants will become members of the RobotCub consortium. For administrative reasons, the iCub kit will remain the property of the RobotCub consortium but will be leased to the applicant's host institute cost-free for an indefinite period. The lease will end when the iCub is no longer being used for research by the host institute.

Successful applicants must demonstrate a commitment and ability to allocate adequate and appropriate technical support for the iCub. In particular, the person participating in the two-month construction exercise must have prior experience with mechanical and electronic assembly.

Eligibility of Applicants

The call for proposals is open to all researchers in artificial cognitive systems. Whilst the call is targeted mainly at EU research laboratories, in exceptional circumstances (such as a ground-breaking proposal from a top-class team or individual), one or more iCubs may be awarded to researchers based outside the EU.

Members of the proposal evaluation team and members of the RobotCub project consortium are not eligible to submit proposals.

Proposal Evaluation

Each proposal will be evaluated by a panel of international experts appointed by the RobotCub consortium in consultation with the European Commission. This panel will be constituted to represent the RobotCub project, the EU and international research communities, and the European Commission.

Evaluation Criteria

Proposals will be evaluated using several criteria. These include:

Scientific Profile

- Innovative use of the iCub (i.e. impact on cognitive systems research);
- Technical feasibility of the project;
- Collaboration with other research groups (to create a multiplier effect for iCub usage);
- Contribution to the portfolio of iCub software capabilities.

Applicant Profile

- Track record of the principal investigator;
- Support facilities at the applicant's site (e.g. research infrastructure);
- Commitment of human resources (e.g. dedicated technician).

Phased Roll-out of Awards

Roll-out of the iCubs to the eight successful applicants will be effected in three phases, each phase lasting six months, with two iCubs being assembled in the first phase, and three each in the subsequent two phases.

This phased roll-out will allow successful proposals to be scheduled so that applicants with the most experience in robotics and who can immediately exploit the iCub to be scheduled first; those applicants requiring some time to prepare for the assembly phase and put in place the requisite support facilities can be scheduled for later phases.

Conditions for Acceptance of Award

In addition to undertaking to fulfill the research agenda set out in the proposals, successful applicants must commit to making the results of their research work on the iCub available to the international research community by adopting the iCub GPL and FDL licences and by contributing any software and documentation that results from their research to the iCub repository.

Key Dates

1 September 2007	Launch of competitive call for proposals
1 December 2007	Closing date for submission of proposals
1 January 2008	Announcement of successful proposals
1 March 2008	Phase 1 launch of two projects – two month assembly period in Genoa
1 September 2008	Phase 2 launch of three projects – two month assembly period in Genoa
1 March 2009	Phase 3 launch of three projects – two month assembly period in Genoa

Useful links

http://www.iCub.org	The official RobotCub website: Information about the RobotCub project
http://eris.liralab.it/wiki/Main_Page	The iCub wiki: Information about the iCub hardware and software
http://eris.liralab.it/wiki/VVV07	The 20007 RobotCub Summer School wiki
http://www.cognitivesystems.eu	The Cognitive Systems and Robotics Unit, European Commission

Procedure for Submission of Proposals

Proposals should be emailed to admin@robotcub.org no later than 17:00 on the 1st December 2007. All submissions will be acknowledged.

Further Information

Please send any enquiries to admin@robotcub.org.

Proposal Content

1.   Proposal Title (maximum 30 words)

2.   Host Institution

3.   Applicant Details (name and contact information)

4.   Project Summary (maximum 100 words)

5.   Research Proposal (maximum 6 pages)

   Please address all the aforementioned evaluation criteria under the headings:

   a.   What aspect(s) of cognitive systems does this proposal address?
   b.   Why is this problem significant?
   c.   Why is it necessary to address this problem using an embodied robot platform?
   d.   Why is the iCub a particularly suitable platform?
   e.   What evidence can you provide that you will be able to address this problem successfully?
   f.   How will you address the problem (brief programme of work)?
   g.   What level of research effort will be committed?
   h.   What level of technical support effort will be committed?
   i.   What will be the concrete outcomes of the research work (new iCub software, new iCub hardware, publications, …)?
   j.   Will this work be done in connection with any other research project?
   k.   Will you collaborate with other researchers / institutions? In what capacity?

6.   Preferred Roll-out Phase

7.   Complementary Funding (maximum 1 page)

   Please identify the source, amount, and nature of any complementary funding that will be used to support the research you propose to undertake.

8.   References

9.   Curriculum Vitae of Principal Investigator (2 pages maximum)

10.   Collaborators and Letters of Commitment (if relevant)

   Letters of commitment describing the specific contribution that the collaborator is agreeing to provide; please avoid submitting letters of general support.