

Cognitive science and astrobiology combine for SETI

Collaboration activities

Report the ideas to related conferences:

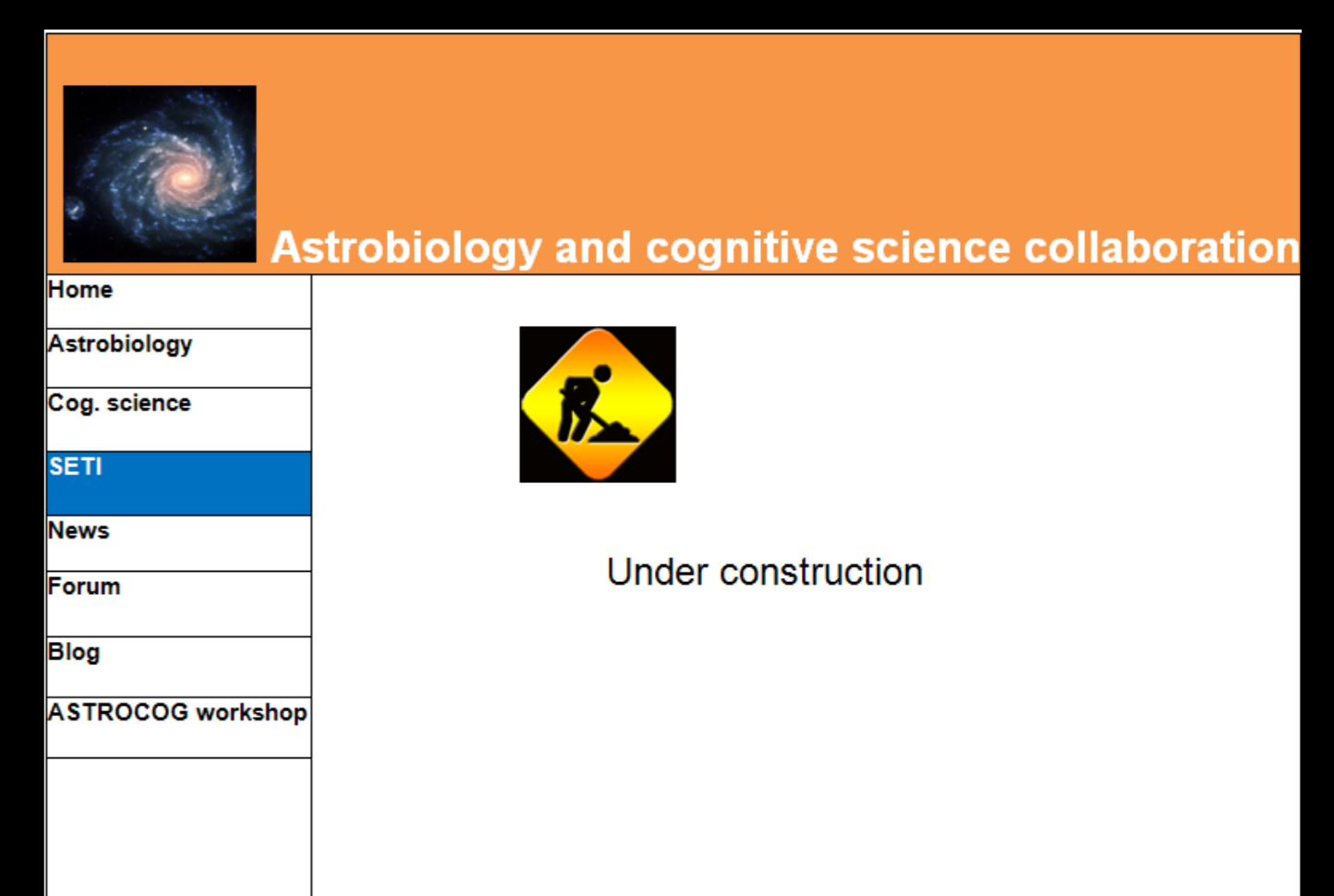
- Artificial Life
- Astrobiology graduate
- CogSci
- Origins



Develop a website for sharing information

www.astrocog.org

- forum
- news
- publications



Organize workshop on the topic

“**AstroCog** – when the astrobiology meet the cognitive robotics

- Find the interested sponsors from the both science fields
- Invite participations/lecturers from the related conferences
- Give the participants opportunity to gain access to the new ideas and develop new insights for extending them and finding applications



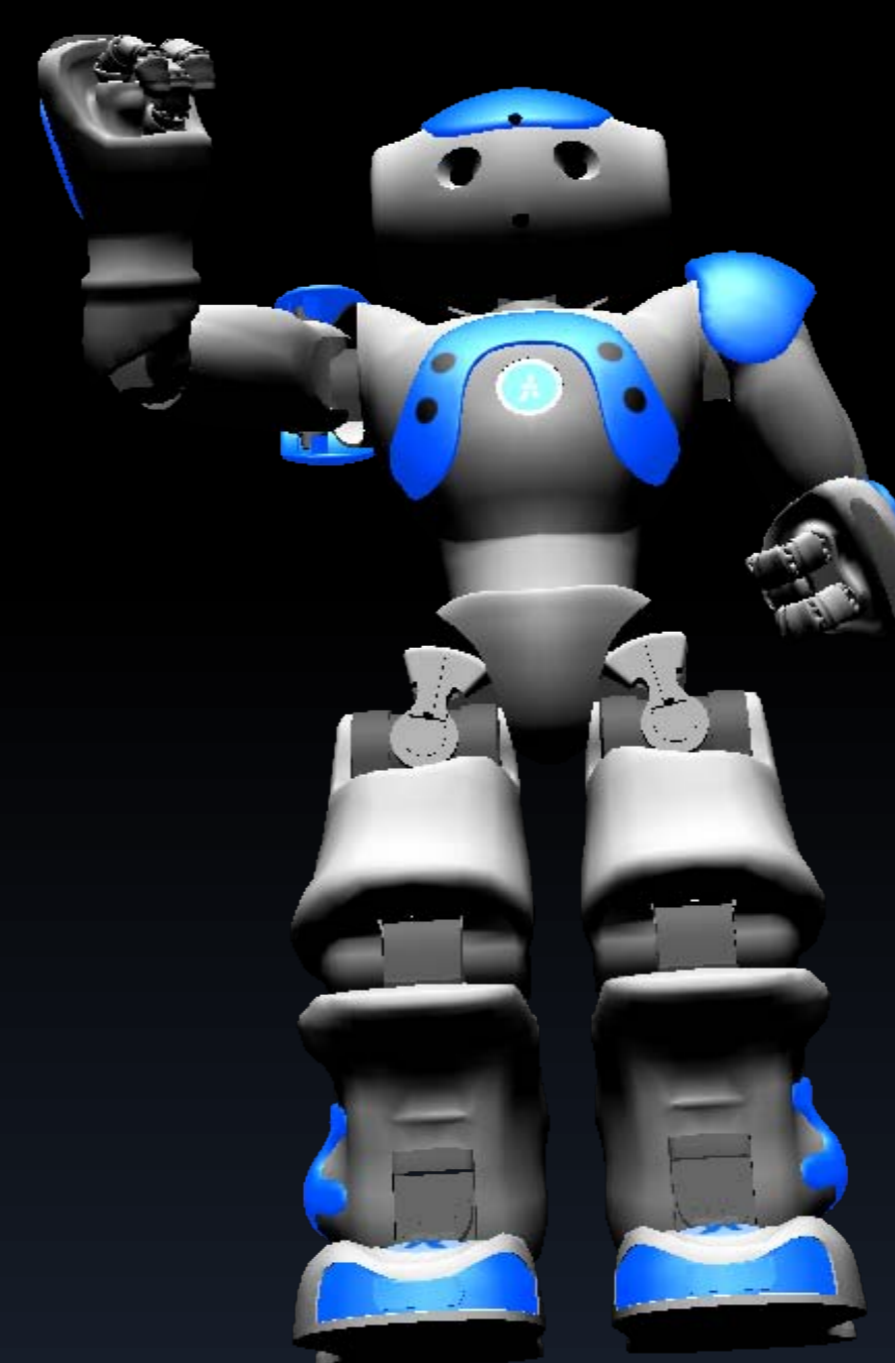
Example collaboration topic

Astrobiology

- Collect data for possible habitable planets outside solar system
 - Define requirements for habitability
 - Collect signatures of life outside Earth
- Develop models of possible extraterrestrial habitual environmental conditions
 - Define the general evolutionary mechanisms
 - Define environmental limits of life



- Create models of possible alien intelligence
 - For that purpose use the existing models from the cognitive science which are crucially depended on the environmental constraints and bodily morphology and apply them in the models of the possible alien worlds provided by astrobiology
- Explore the differences with human intelligence
- Develop new ways for Searching for ExtraTerrestrial Intelligence



Cognitive robotics

Develop cognitive models based on general principles of autonomy, self-organization and adaptation to limited resources:

- E gas-net architecture for brain body interface
- Microfibual cell model for energy autonomous agents

Test the models with robots with different body morphologies and energy constraints

- Humanoid robots
 - NAO
 - iCub
- Wheeled robots
 - E-puck
 - Khepera

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References:

1. Bredeche N., J.-M. Montanier. Environment-driven Embodied Evolution in a Population of Autonomous Agents. The 11th International Conference on Parallel Problem Solving From Nature (PPSN 2010). To be published in Springer LNCS serie
2. Ziemke, T. and Lowe, R. (2009). On the Role of Emotion in Embodied Cognitive Architectures: From Organisms to Robots. *Cogn. Comp.*, 1:104-117
3. Heap, Sara R.; Kuchner, Marc (2009), The Direct Approach to Finding Earth-Like Planets Astro2010

Some of the pictures in poster are taken from: <http://www.astro.wisc.edu/>; <http://www.conference-health.com/>