

# AAAI 2005 Fall Symposium

Author: Giorgio Metta<giorgio.metta@robotcub.org>

A workshop at the AAAI 2005 fall symposium

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CALL FOR PAPER

FROM REACTIVE TO ANTICIPATORY COGNITIVE EMBODIED SYSTEMS  
AAAI 2005 Fall Symposium  
November 3-6, 2005, Hyatt Crystal City in Arlington, Virginia  
<http://www.mindraces.org/events/fss05/>

Submission deadline: May 2, 2005  
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In order to deal with novel and dynamic environments, cognitive systems need sophisticated capabilities based on many kinds of anticipation.

Expectations and prediction-based control mechanisms underlie effective routinized behavior. Every step we take relies on the expectation that the floor will not give way beneath us; the pervasiveness of such expectations is highlighted by the surprise we experience when we suddenly lose our footing and by our ability to control and adjust it by using a prediction-control loop. Moreover, the ability of building higher order expectations about future events has been a major evolutionary and cognitive breakthrough for humans. Our representations are detached from the present here and now, and we can conceive forthcoming events - and even situations that will never be real. We are able to reason not only about what we experience, but about expected, desired and feared futures - our behavior can thus be really "driven by the future".

The aim of this symposium is to bring together scientists from several fields from AI and Robotics to Cognitive Science and Neuroscience interested in these topics to present, discuss and make further progresses toward the understanding of anticipatory cognitive systems situated in a real dynamic environment.

Some significant questions to be addressed are:

- Which is the specific role of anticipatory mechanisms with respect to reactive ones, both in an evolutionary and architectural perspective? Which are the evolutionary stages leading from reactive to anticipatory systems, and from simpler to more complex anticipatory mechanisms?
- How do we exploit anticipatory capabilities for shifting attention, for selecting the appropriate features to perceive the environment and interacting with it, for selecting and regulating our behavior on the basis of representations of the future, expectations and goals?
- Which is the relation between anticipatory processes and symbol formation?
- How emotions and bodily responses are related to anticipatory representations? How are anticipatory emotions such as fear and hope built and exploited?
- How do different anticipatory mechanisms integrate and interact? Which kinds of representations they exploit? Which are their powers and limitations?

## SUBMISSIONS

People interested in giving a presentation are encouraged to submit a technical paper (from 2000 to 6000 words, in PDF). Other participants should submit either a position paper, a statement of interest or an illustration of work in progress they like to discuss.

Submission should be sent to [fss05@mindraces.org](mailto:fss05@mindraces.org)

By targeting predefined questions and commenting challenging scenarios, the discussion will aim to the envisioning of complex architectures that integrate several anticipatory mechanisms across different cognitive levels.

Instructions for authors can be found at the AAI web-site <http://aaai.org/Symposia/Fall/fall-symposia.html>

## DEADLINES

May 2, 2005: Submission deadline  
May 23, 2005: Notifications of acceptance/rejection  
November 3-6, 2005: Symposium

## ORGANIZING COMMITTEE

Christian Balkenius, Lund University, Sweden

Martin V. Butz, University of Würzburg, Germany

Cristiano Castelfranchi (Chair), Institute of Cognitive Science and Technology of the CNR, Italy

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