

## [AAAI 2008 Fall Symposium Series](#)

Arlington, Virginia — November 7–9, 2008

### **Symposium Title: Biologically Inspired Cognitive Architectures**

#### **Description**

This symposium will focus on the *challenge of creating a computational equivalent of the human mind* limited to a selected domain of expertise. This fundamental scientific problem calls for the design and experimental study of biologically inspired cognitive architectures (BICA). Despite a substantial number of recent conferences and workshops focused on computational theories of biological information processing, this topic of research remains underrepresented. Some of its valuable outcomes are just beginning to emerge in publications. It is therefore our view that a forum, under the auspices of the AAAI 2008 Fall Symposia, dedicated to the topic of BICA is both timely and beneficial in stimulating further research in this field. The primary objective of this symposium is to showcase recent modeling and rapid prototyping experience aimed at building architectures of cognitive agents that have been inspired by the human brain and, in a definite sense, operate like the human mind. At the same time, theoretical discussion of the underlying mechanisms will be equally encouraged.

Biological constraints on human cognition informed by neuroscience and psychology become most valuable, when it comes to a computational description of higher cognition. Some of them are pre-programmed to develop at a certain age and are critical for robustness and adaptability in real-world situations. On the other hand, the main body of human cognitive abilities is acquired through learning and meta-learning (cognitive growth), which thus are the key to development of adult human-level intelligence. Learning can be achieved not only via trial and error, but most importantly, through social and teaching paradigms: by instruction, by example, and by guided exploration (example: "learning by reading"). From this point of view, it is important (A) to determine a "critical mass" of capabilities that together enable bootstrapped learning, (B) to find the right architecture for their implementation, and (C) to be able to measure the outcome.

**Submissions** of AAAI-formatted abstracts or papers may target all areas of cognitive modeling, psychological and brain sciences, and potential applications of BICA, including NLP and language acquisition, intelligent/social robotics, virtual social characters, pedagogical agents, and human-computer interface, with a focus on biological constraints, human-like learning and cognitive growth (see also the list of topics below). [Details are on pages 5-6.](#) Before submission, at this time, an inquiry should be sent to [samsonovich@cox.net](mailto:samsonovich@cox.net). This symposium is meant to be an informal working meeting rather than a mini-conference, with a focus on discussion rather than talks. Therefore we are inviting you to submit short papers / abstracts describing new/breaking research. The format of the symposium is one-track session with panel discussions and a poster session.

## **Format**

The format of the symposium is one-track session with intermittent open-format panel discussions. Each technical session will focus on a separate topic and ideally should begin with a *keynote* followed by approximately four regular talks (with an ample time for questions allocated after each talk). A keynote talk can be “long” (20-30 minutes) or short (5 minutes, intended to initiate and set the stage for a discussion). We may include up to one short and one long keynote per session, plus one short keynote per panel discussion. The final details of the format will be decided after the reviews will be completed for most submissions by July 6. Papers will be published in AAAI Technical Reports before the symposium, plus we expect to publish a book of proceedings or a journal issue with extended versions of accepted papers. A short review of the symposium (and, very likely, selected papers themselves) will be printed in *AI Magazine*.

## **Core Organizing Committee**

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### ***Program Committee***

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## Contributors

<http://binf.gmu.edu/~asamsono/bica/presenters.htm>

### ***Other Strong Supporters of This Symposium Who Cannot Attend***

Igor **Aleksander**, Professor Emeritus in Neural Systems Engineering, Imperial College London; Jef **Allbright**, Aware Research; Ronald **Arkin**, Georgia Tech; Tamara & Vadim **Astakhov**, UCSD; Ruth **Aylett**, Heriot-Watt University; Bernard **Baars**, Neurosciences Institute; Joscha **Bach**, Institut für Informatik, Humboldt-University of zu Berlin; Paul **Baclace**, Persuasive Technology Lab; Susan **Becker**, McMaster University; Forrest **Bennett**, Stanford University; Alan **Bond**, UCLA; Ronald **Brachman**, Yahoo Research; Alan **Bundy**, University of Edinburgh; Keith **Downing**, NTNU; Marek **Druzdzal**, University of Pittsburgh; Wlodzislaw **Duch**, Nicolaus Copernicus University; Michael **Ekstract**, Kean University; Jeff **Elman**, Kavli Inst. For Brain & Mind; Ian **Eslick**, MIT Media Lab; Robert **Freitas**, Inst. for Molecular Manufacturing; Jean-Gabriel **Ganascia**, University of Pierre et Marie Curie; Pentti O A **Haikonen**, Nokia; Pascal **Hitzler**, University of Karlsruhe; John **Hummel**, University of Illinois; Aapo **Hyvarinen**, Helsinki Institute for Information Technology; Mark **Keane**, University of College Dublin; Chris **Kello**, GMU; Bruce **Klein**, Novamente; Boicho **Kokinov**, New Bulgarian University; Stephen **Kosslyn**, Harvard University; Benjamin **Kuipers**, University of Texas at Austin; John **Laird**, University of Michigan; Wendy **Lehnert**, University of Massachusetts; Alexandre **Linhares**, Instituto Nacional de Pesquisas Espaciais; Karl **MacDorman**, Indiana University; Bruce **MacLennan**, University of Tennessee; Lorenzo **Magnani**, writer; Matt **Mahoney**, Florida Tech; Dennis **McBride**, Georgetown University; Martin **McGinnity**, Intelligent Systems Research Centre and University of Ulster at Magee; Patrick **McKnight**, Psychology/GMU; Ruud **Meulenbroek**, Radboud University of Nijmegen; Bernd **Neumann**, University of Hamburg; Jim **Olds**, Krasnow/GMU; Randall **O'Reilly**, University of Colorado; Domenico **Parisi**, Institute of Cognitive Sciences and Technologies, Italy; Alice **Parker**, USC; Catherine **Pelachaud**, University of Paris; Maria **Petrou**, University of Cambridge; Alex **Pinz**, Graz University of Technology, Austria; Leah **Reeves**, Potomac Institute for Policy Studies; Erol **Sahin**, Middle East Technical University; Anders **Sandberg**, Oxford University; Mike **Schoelles**, Rensselaer Polytechnic Institute; Michael **Spivey**, Cornell University; John **Taylor**, Imperial College London; Mike **Tintner**, AGIRI; Jan **Treur**, University of Amsterdam; Dimitrios **Tsonos**, National and Kapodestrian University of of Athens; Sherry **Turkle**, MIT; David **Vernon**, euCognition; Paul **Vogt**, Vrije Universiteit Amsterdam; Mark **Walker**, McMaster University; Russell **Wallace**, DotNetDevelopment; Phil **Winne**, Simon Fraser University; Chris **Wood**, Santa Fe Institute; Lotfi **Zadeh**, UC Berkeley; Kechen **Zhang**, Johns Hopkins University; Barry **Zimmerman**, City University of New York; Jacek **Zurada**, University of Louisville, and many others.

## ***Important Details***

AAAI 2008 Fall Symposium on BICA is to be held as a part of AAAI 2008 FSS on November 7-9, 2008, at the [Westin Arlington Gateway](#) in Arlington, Virginia adjacent to Washington, DC. The Symposium Series will be preceded on Thursday, November 6 by a one-day AI funding seminar. Important deadlines include:

Submission to this symposium is now closed.

- July – August: Registration opens at the AAAI web site
- September 12: Accepted papers in their final version and all forms are due
- September 19: Early registration deadline
- October 17: Open registration deadline

All papers should be prepared using the AAAI Author Kit (that can be found at, and downloaded from <http://www.aaai.org/Publications/Author/author.php> ) and should be submitted via email to Alexei Samsonovich: [samsonovich@cox.net](mailto:samsonovich@cox.net), [asamsono@gmu.edu](mailto:asamsono@gmu.edu) or to another [COC](#) member. In addition, authors of accepted papers will need to access the following documents on the AAAI web site before September 12: Permission to Distribute Form at [www.aaai.org/Publications/Author/distribute-permission.pdf](http://www.aaai.org/Publications/Author/distribute-permission.pdf) and samples of *AI Magazine* reports at [www.aaai.org/Library/Magazine/magazine-library.php](http://www.aaai.org/Library/Magazine/magazine-library.php). The Organizing Committee will explore standard publishing venues through AAAI Press, and then (if necessary) the MIT Press, as suggested by AAAI.

***All submissions are subject to peer review. A paper needs to be presented at the symposium in order to be included in the proceedings, and vice versa, a speaker needs to have a peer-reviewed paper or abstract included in the proceedings in order to be included in the program.***

All rooms in which the Symposia are held will have as standard equipment an LCD projector. Individuals requiring special audio visual needs (such as an overhead projector, poster boards, or a VCR) for their presentations are requested to provide the information. Authors are required to provide their own laptop computers, as well as all software needed to operate programs.



### [Westin Arlington Gateway](#)

AAAI will be able to waive the registration fee for up to two symposium participants named by the Organizing Committee (usually selected among the keynote speakers or Organizing Committee members). All inquiries at this time should be sent to [Alexei Samsonovich](mailto:samsonovich@cox.net) ([samsonovich@cox.net](mailto:samsonovich@cox.net)) and/or to other [COC members](#). We are looking forward to a very successful AAI Fall BICA Symposium.

For housing ideas, please see <http://binf.gmu.edu/~asamsono/bica/housing/>

This symposium is an official AAI event.



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