

Call for Papers

Third International Workshop on
Epigenetic Robotics:
Modeling Cognitive Development in Robotic Systems
<http://www.epigenetic-robotics.org>

August 4-5, 2003

Location: Boston University
Boston, MA, USA
(held after the Cognitive Science Society Meeting)

Submission Deadline: 14 March 2003

Extended Deadline: 31 March 2003

This workshop focuses on combining developmental psychology and robotics, and on three properties of natural and artificial systems:

- (a) the embodiment of the system;
- (b) its situatedness in a physical and social environment;
- (c) a prolonged *developmental process* through which varied and complex cognitive and perceptual structures emerge as a result of an embodied system interacting with a physical and social environment.

Epigenetic robotics includes basic research goals of interdisciplinary integration between developmental psychology and robotics. Psychological theory and empirical evidence should be used to inform epigenetic robotic models, and these models should be used as theoretical tools to make experimental predictions in developmental psychology. Epigenetic robotics research also includes practical goals of: (1) enabling robots and other artificial systems to better adapt to their environments, and to better adapt to changes in these environments, and (2) easing the problem of programming robots—by programming the robots to develop skills for any particular environment instead of programming robots for specific environments (see also Weng, McClelland, Pentland, Sporns, Stockman, Sur, & Thelen, 2001).

Subject Areas include, but are not limited to:

- The role of motivation, emotions, and value systems in development;
- The development of: concepts, consciousness and self-awareness, emotion, imitation, intentionality, intersubjectivity, joint attention, learning, motivation, non-verbal and verbal communication, self, sensorimotor schemata, shared meaning and symbolic reference, social learning, social relationships, social understanding (“mind reading”, “theory of mind”), value systems;

- Interaction between innate structure, ongoing developing structure, and experience;
- Related issues in algorithms, robotics, simulated robots, and embodied systems;
- Strong AI (true intelligence and autonomy) versus weak AI;
- Related issues from human and nonhuman empirical studies.

For summaries of the papers from the first two workshops see Zlatev and Balkenius (2001), Prince (2002a), and Prince (2002b).

Please send any questions to the workshop co-chairs: Luc Berthouze (Luc.Berthouze@aist.go.jp) and Christopher G. Prince (chris@cprince.com).

Sponsors

Cognitive & Neural Systems Department, Boston University, USA
 Communications Research Laboratory, Japan

Location

The workshop is being held on campus at Boston University in Boston, MA, USA. The workshop follows the 2003 meeting of the Cognitive Science Society.

Invited Speakers

György Gergely
 (Institute for Psychological Research, Hungarian Academy of Sciences, Budapest, Hungary)
 Rod Grupen (Laboratory for Perceptual Robotics, University of Massachusetts Amherst, MA, USA)
 Deb Roy (Media Lab, MIT, USA)

Submissions

Papers not exceeding *eight* (8) pages should be submitted electronically (PDF or Postscript) as attachment files to Luc Berthouze (Luc.Berthouze@aist.go.jp). Extended abstracts (maximum *two* pages) can also be submitted, and will be presented as posters (extended abstracts should also be submitted in PDF or Postscript as attachments to Luc Berthouze (Luc.Berthouze@aist.go.jp)). Further instructions to authors will be posted on the workshop web page: <http://www.epigenetic-robotics.org>

Important Dates

March 14, 2003:	Deadline for submission of papers and posters
March 31, 2003:	Extended deadline for submission of papers and posters
May 1, 2003:	Notification of acceptance for papers and posters
May 26, 2003:	Deadline for camera ready-papers & posters
August 4-5, 2003:	Workshop

Organizing Committee

Christian Balkenius (Cognitive Science, Lund University, Sweden)
 Luc Berthouze (Neuroscience Research Institute, AIST, Japan)
 Daniel Bullock (Cognitive & Neural Systems Department, Boston University, USA)

Hideki Kozima (Communications Research Laboratory, Japan)
Christopher Prince (Computer Science, University of Minnesota Duluth, USA)
Georgi Stojanov (Computer Science Institute, SS Cyril and Methodius University, Macedonia)

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Matthew Schlesinger (Psychology Department, Southern Illinois University, USA)
Georgi Stojanov (Computer Science Institute, SS Cyril and Methodius University, Macedonia)
Gert Westermann (School of Psychology, Birkbeck College, UK)
Tom Ziemke (Department of Computer Science, University of Skovde, Sweden)

Publication of Papers & Poster Abstracts

Papers and poster abstracts will be published in a proceedings, and archived at [CogPrints](http://cogprints.ecs.soton.ac.uk) (<http://cogprints.ecs.soton.ac.uk>).

REFERENCES

- Zlatev, J. & Balkenius, C. (2001). Introduction: Why “epigenetic robotics”? *Proceedings of the First International Workshop on Epigenetic Robotics: Modeling Cognitive Development in Robotic Systems* (pp. 1-4). Lund University Cognitive Studies, Volume 85. Available at: <http://www.lucs.lu.se/Epigenetic-robotics/Papers/Zlatev.Balkenius.2001.pdf>
- Prince, C. G. (2002a). Introduction: The Second International Workshop on Epigenetic Robotics. In C. G. Prince, Y. Demiris, Y. Marom, H. Kozima, & C. Balkenius (Eds.) *Proceedings of the Second International Workshop on Epigenetic Robotics: Modeling Cognitive Development in Robotic Systems*. Lund, Sweden: Lund University Cognitive Studies Volume 94. Available at: <http://www.cprince.com/PubRes/EpigeneticRobotics2002/Prince-Intro.pdf>

Prince, C. G. (2002b). Opening speech. *The Second International Workshop on Epigenetic Robotics: Modeling Cognitive Development in Robotic Systems*. Available at: <http://www.cprince.com/PubRes/EpigeneticRobotics2002/intro/intro.pdf>

Weng, J., McClelland, J., Pentland, A., Sporns, O., Stockman, I., Sur, M., & Thelen, E. (2001). Autonomous mental development by robots and animals. *Science*, 291, 599-600. Available at: <http://www.cse.msu.edu/dl/SciencePaper.pdf>