www.euCognition.org

Final Review

5th December 2008

- 10:00 Welcome & Introduction: Hans-Georg Stork & David Vernon
- 10:15 Summary of the Activities of the Network: David Vernon
- 11:15 Coffee
- 11:45 Questions, Answers, and Open Forum: Executive Committee
- 13:00 Lunch
- 14:00 Review Team Meets
- 15:00 Preliminary Feedback: Hans-Georg Stork
- 15:15 Discussion and Clarification: All Participants
- 15:40 Concluding Remarks: Hans-Georg Stork & David Vernon
- 16:00 Close

Brief Review of the Goals

Goals

What is euCognition?

FP6 Project 26408 (Coordination Action)

Funded by the European Commission
Unit E5 – Cognition
(now Cognitive Systems & Robotics)

Duration: 3 years … 1/1/06 → 31/12/08

Budget: €1,599,916

Goals

What do we do?

Foster inter-disciplinary interaction: community building

Build the scientific & engineering foundations of cognitive systems

Facilitate

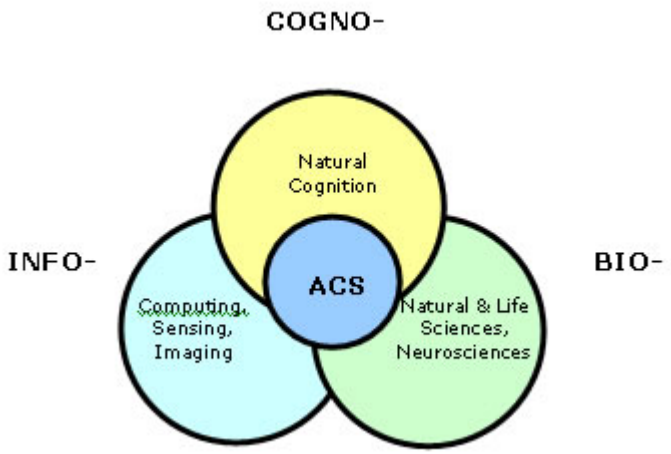
- Workshops
- Conferences
- Courses
- Exchanges of staff and students
- Development & dissemination of training material
- Access to development platforms
- Research planning
- … but not research

Goals

Who is it for?

Open to anyone doing research in the many disciplines that address the issues of creating artificial cognitive systems including (but not limited to)

- Neuroscience
- Psychology
- Cognitive science
- Machine Learning
- Autonomous systems theory
- Cognitive robotics
- Mathematical modelling
- Cognitive Vision
- …



It's not a small small world …

AI
Psychology
Neuroscience
Non-linear dynamical systems theory
Synergetics
Autonomous systems theory
Machine learning
Pattern recognition
Computer vision
Haptic sensing
Cybernetics
Neural networks
Epistemology
Philosophy
Language
Semiotics
Robotics
Manipulation
Communication
…

Difficulties:

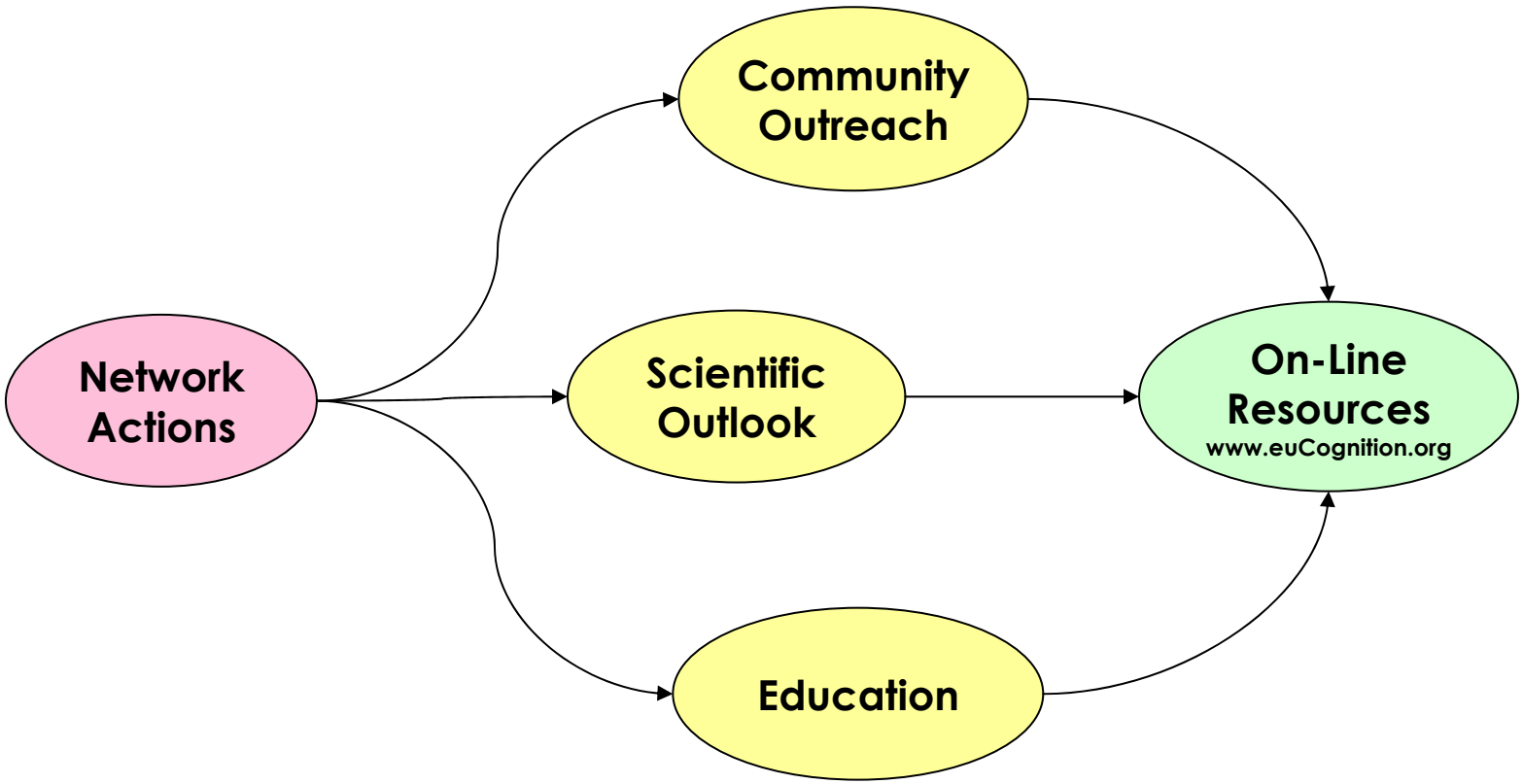
- Different perspectives
- Different languages
- Hard & Soft Science

Mathematical Models

Activities

Activities

How does it work?



Network Activities

Community Outreach

- Inter-project collaboration
- New blood from both academia and industry
- Exhanges, esp. with those not yet involved in funded projects
- Provide resources for new pilot initiatives

  (e.g. providing access to platforms for experimental work in embodied cognition)

Network Activities

Scientific Outlook

- Research planning
- Refining and developing the our characterization of cognition
- Key focus: cross-fertilization of ideas

Network Activities

Education

- Address difficulties posed by the multi-disciplinary nature
- Bridge gaps between sub-disciplines
- Summer schools
- Creation of teaching material

People and Forums

European Network for the Advancement of Artificial Cognitive Systems

Three principal bodies are involved in the running of the network:

1. The Executive Committee

2. A CogSys Project Coordinators Round-Table Forum

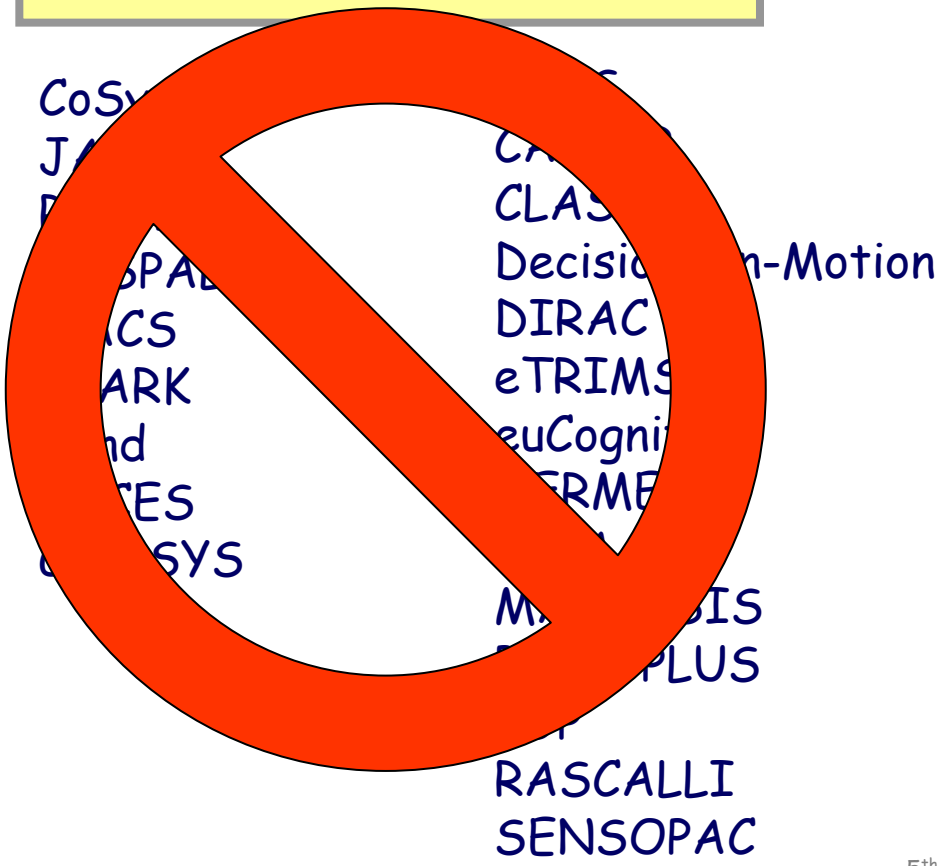
3. The European Commission Project Officer(s)

Hans-Georg Stork
Eva Benova
Colette Maloney
Bjoern Juretzki

Executive Committee

David Vernon	Network Coordinator
Fred Cummins	University College Dublin
Markus Vincze	Technische Universitaet Wien
Tom Ziemke	Högskolan i Skövde
Erik Hollnagel	Linköpings Universitet
Christoph von der Malsburg	Ruhr-Universitaet Bochum
Bill Sharpe	The Appliance Studio Ltd.
Matthias Scheutz	Indiana University
Guy Tiberghien	Centre National de la Recherche Scientifique (CNRS)
Peter F. Dominey	Centre National de la Recherche Scientifique (CNRS)
Juergen Jost	Max Planck Institute for Mathematics in the Sciences
Andreas Engel	University Medical Center Hamburg-Eppendorf
Joanna Bryson	University of Bath
Barbara Caputo	IDIAP

Project Coordinators Round-Table Forum



Mid-term Review Feedback

Mid-term Review Feedback

- More summer schools
- Doctoral consortia
- More diversity on the Executive Committee
- Try to co-locate workshops at major conferences
- "Thinking about thinking is difficult unless you are thinking about something" … learn from specific domains and address concrete examples
- The Sloman backward chaining model for research roadmaps has considerable merit; deploy it where possible

Outcomes & On-line Resources

On-line resources

1 Deliverable:

the resources on the euCognition website

www.euCognition.org

(and the euCognition Wiki)

On-line resources

www.euCognition.org

- Dynamic (?) repository of resources: outreach, outlook, education
- Cognitive systems community
  - Research
  - Education
- Visibility in the greater community
- Show-case results & example validation experiments
- Forum for sharing information

euCognition

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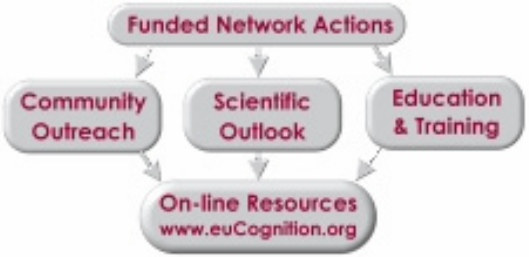
Members | Network Actions | News



What is euCognition? What does it do?

Who is it for? Why should I join?

Next Meeting | Roadmap | Wiki

CogSys
Cognitive Systems

euCognition

The European Network for the Advancement of Artificial Cognitive Systems

Home | More Info | News | Outreach | Outlook | Education

Members | Network Actions | News

Funded Network Actions

Community Outreach | Scientific Outlook | Education & Training

On-line Resources
www.euCognition.org

Next Meeting | Roadmap | Wiki

CogSys
Cognitive Systems

Membership

- Membership open to anyone who is active in the domain of cognitive systems
  - Submit membership application form
  - Subject to reviewed by Executive Committee … cf proxy
- All those that are part of an FP6 & FP7 cognitive systems projects
- All members of ECVision (www.ECVision.org)
- Membership is personal not institutional
- No borders

'The Cognitive Systems Community'

- 376 Members (116 in July 2006, 219 July 2007)
  - Target: 120
- Of which, 104 Student Members (5 in July 2006, 46 July 2007)
- 253 members NOT formally associated with CogSys projects (57 in July 2006, 123 in July 2007)
- List on the website

euCognition

The European Network for the Advancement of Artificial Cognitive Systems

Members

We are 376 members strong. Why don't you become a member?

283	Russ	Abbott	California State University, Los Angeles	Russ.Abbott@GMail.com	http://abbott.calstatela.edu/
157	Alberto	Acerbi	Istituto di Scienze e Tecnologie della Cognizione - CNR	alberto.acerbi@istc.cnr.it	http://laral.istc.cnr.it/acerbi/
135	Ferenc	Acs	University of Regensburg	ferenc.acs@psychologie.uni-regensburg.de	http://www.psychologie.uni-regensburg.de/Greenlee/team/ac
211	Malin	Aktius	University of Skövde	malin.aktius@his.se	http://www.his.se/icea/aktius
185	Tjeerd	Andringa	University of Groningen	Tjeerd@ai.rug.nl	http://www.ai.rug.nl/~tjeerd/
87	Jörn	Anemüller	University of Oldenburg	joern.anemueller@uni-oldenburg.de	http://staff.uni-oldendburg.de/joern.anamueller
108	Cecilio	Angulo	Technical University of Catalonia	cecilio.angulo@upc.edu	http://www.upc.net.es/~upc15838
156	Martin	Antenreiter	University of Leoben	martin.antenreiter@unileoben.ac.at	http://www.unileoben.ac.at/~mantenreit/
73	Paolo	Arena	University of Catania	parena@diees.unict.it	http://www.dees.unict.it/users/parena/index.html
56	Tamim	Asfour	Universitaet Karlsruhe	asfour@ira.uka.de	http://i61www.ira.uka.de/users/asfour/
49	Peter	Auer	University of Leoben	auer@unileoben.ac.at	http://www.unileoben.ac.at/~auer/
199	Nihat	Ay	Max Planck Institute for Mathematics in the Sciences	nay@mis.mpg.de	http://www.mis.mpg.de/ay/
121	Ruth	Aylett	Heriot-Watt University	ruth@macs.hw.ac.uk	http://www.macs.hw.ac.uk/~ruth
149	Pau	Baiget	Universitat Autònoma de Barcelona	pbaiget@cvc.uab.es	http://www.cvc.uab.es/~pbaiget
115	Jose Luis	Balcazar	Universitat Politecnica de Catalunya	balqui@lsi.upc.edu	http://www.lsi.upc.edu/~balqui
66	Gianluca	Baldassarre	Instituto di Scienze e Tecnologie della Cognizione	gianluca.baldassarre@istc.cnr.it	http://laral.istc.cnr.it/baldassarre/
330	Christian	Balkenius	Lund University	christian.balkenius@lucs.lu.se	http://www.lucs.lu.se/Christian.Balkenius
146	Xabier	Barandiaran	University of the Basque Country	xabier@barandiaran.net	http://ehu.es/ias-research/barandiaran
350	Christoph	Bartneck	University of Skövde	c.bartneck@tue.nl	http://www.bartneck.de
332	Iva	Bartunkova	Charles University of Prague	Iva.bartunkova@gmail.com	http://ksvi.mff.cuni.cz/
40	Christian	Bauckhage	Deutsche Telekom Laboratories	christian.bauckhage@iais.fraunhofer.de	http://www.iais.fraunhofer.de/2.html?&L=1
4	Paul	Baxter	University of Reading	p.e.baxter@reading.ac.uk	http://www.personal.reading.ac.uk/~sir05peb/
370	Eduardo	Bayro-Corrochano	CINVESTAV Unidad Guadalajara	edb@gdl.cinvestav.mx	http://www.gdl.cinvestav.mx/edb
288	Martin	Beck	University of Plymouth	mbeck@plymouth.ac.uk	http://www.tech.plym.ac.uk/soc/research/ABC/
366	Manuel	Bedia	Universidad de Zaragoza	mgbedia@unizar.es	http://webdiis.unizar.es/~mgbedia
98	Tony	Belpaeme	University of Plymouth	tony.belpaeme@plymouth.ac.uk	http://www.tech.plym.ac.uk/SoCCE/staff/TonyBelpaeme/
127	Bettina	Berendt	Humboldt University Berlin	berendt@wiwi.hu-berlin.de	http://www.wiwi.hu-berlin.de/~berendt

Membership

- Non-labour costs incurred by member
  - Reimbursed directly by the coordinating contractor
  - Send in claim with travel receipts, reimbursed by electronic transfer within a month (or less)
- Labour costs
  - Member becomes a contractor
    - University of Edinburgh
    - University of Bristol

Membership

- All members eligible to claim travel costs associated with official euCognition event
  - As advertized on the website
  - Subject to guidelines (more later)
- Eligible to apply for limited funding for Network Actions
  - Reviewed by Executive Committee
  - Final approval from Commission PO

Membership

All members commit themselves to making a contribution to the network

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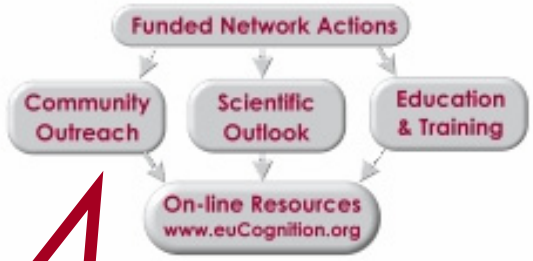

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CogSys
Cognitive Systems

euCognition Inaugural Meeting

16th - 17th February 2006

Nice Acropolis Conference and Exhibition Centre

France

Programme and Presentations

A programme for the meeting can be found here (pdf - 0.13 Mb)

Links to most of the presentations are listed below.

A DVD video of the proceedings is available and can be ordered by sending a self-addressed A5 envelope to:

euCognition DVD,
LIRA-Lab, DIST,
University of Genoa,
Viale F. Causa 13,
16145 Genova,
Italy.

Day 1

Elizabeth Spelke, Harvard University: Core Knowledge of Number and Geometry (pdf - 3.0 Mb)

Jiri Wiedermann, Academy of Science of the Czech Republic: One Computer Theorist's View of Cognitive Systems(pdf - 0.4 Mb)

J A Scott Kelso, Florida Atlantic University: The Coordination Dynamics of Brains and Behavior (pdf - 4.55 Mb)

John Shawe-Taylor, Southampton University: Learning in Cognitive Systems: Inference of Representations & Grounding through Interaction (pdf - 1.15 Mb)

Day 2

Overview of the euCognition Network, Introduction to the Executive Committee, and Operational Matters (pdf - 1.8 Mb)

First Six-Monthly Meeting

Monday 3rd July 2006

NH Vienna Airport Hotel

Austria

"Getting around in the world – does all navigation require cognition?"

A programme for the meeting can be found here (pdf - 0.10 Mb)

Links to most of the presentations are listed below. The remaining presentations will be added soon.

Programme

09:30	Registration
09:50	Welcome (pdf - 0.3 Mb)
10:00	Robert Sutherland, Canadian Center for Behavioural Neuroscience, The University of Lethbridge Contrasting associative and cognitive bases for navigation
10:45	Sidney Wiener, Collège de France Neural activity underlying spatial cognition: Inspiration for robot control architecture
11:30	Coffee
11:45	Hanspeter Mallot , University of Tubingen Insect strategies in human and robot navigation (pdf - 1.7 Mb)
12:30	Lunch
13:30	Jean-Arcady Meyer, AnimatLab, Laboratoire d'Informatique de Paris 6 Navigation in animats: From reflexes, to cognitive maps, and to planning; From evolution, to development, and to learning (pdf - 1.7 Mb)
14:15	Ulrich Nehmzow, Department of Computer Science, University of Essex Self-Localization and Route Learning in Mobile Robots through System Identification (pdf - 1.6 Mb)
15:00	Paul Verschure, ICREA & Technology Department, University Pompeu Fabra Real-world architectures of perception, cognition and behavior
15:45	Panel and Audience Discussion
17:00	Poster Session and Wine Reception

Second Six-Monthly Meeting

11-12 January 2007

Room K13

Municon - Munich Airport Conference Centre

A programme for the meeting can be found here (pdf - 0.17 Mb)

The afternoon of Thursday 11 January was devoted to a competition for student members of euCognition. Entrants made a 15 minute presentation on their cognitive systems research topics and a prize was be awarded to the student(s) who gave the best (i.e. most engaging and informative) presentation. The prize is a grant to cover the costs of travelling to a cognitive systems workshop or conference of her/his choice, subject to a maximum value of 1000 euro (normal reimbursement rules) plus the cost of registering for the conference/workshop.

Friday 12th January was devoted to the euCognition Roadmap: our vision of the applications that are relevant to cognitive systems, and the scientific and technological advances that are needed to realize them. The roadmap will be requirements-driven and capability-led so that it provides both a vehicle for industry outreach and a forum for scientific outlook.

For more information, please see the euCognition wiki here.

Programme

Thursday 11th January

13:00 Registration

14:00 Student Competition

- Cyril Brom, Charles University: Level of detail for action selection of human-like agents
- Sanja Fidler, University of Ljubljana: Learning Hierarchical Representations of Object Categories
- Martin Antenreiter, University of Leoben: A reasoning system to track movements of totally occluded objects
- Armin Duff, University Pompeu Fabra: Rule learning in men, machines and avatars: From the neuronal organization of the pre-frontal cortex to computational principles
- Adrian Ion, Vienna University of Technology: Smart without abstraction?
- Javier Orozco, Universitat Autònoma de Barcelona: Emotional Max Headrooms based on Facial Expression Evaluation
- Marc Hanheide, Bielefeld University: An ego-vision system for Cognitive Assistance
- Ricardo Tellez, Technical University of Catalonia: Tactical modularity for evolutionary animats
- Jie Luo, IDIAP Research Institute: Incremental Learning for Adaptive Visual Place Recognition in Dynamic Indoor Environments
- Markus Rooho, University of Regensburg: How the brain processes visually induced self motion

- Vassilios Vonikakis, Democritus University of Thrace: Enhancement of perceptually salient contours with an artificial cortical network
- Oliver Herbort, University of Würzburg: Encoding Sensorimotor Redundancy for Flexible Behavior
- Volker Fischer, University of Regensburg: Fast estimation of Dynamic Causal Models of fMRI time series
- Juraj Simko, University College Dublin: Abstract Model of Speech
- Rainer Stollhoff, Max Planck Institute for Mathematics in the Sciences: Prosopagnosia - How face recognition does not work
- Benjamin Inden, Max Planck Institute for Mathematics in the Sciences: Speciated Neuroevolution

18:30 Judges Convene

19:00 Announcement of winners: Sanja Fidler and Armin Duff

Friday 12th January

10:00 Registration

10:30 Goals of the Meeting

Bill Sharpe, The Appliance Studio Ltd.: The euCognition Roadmap

10:45 The Commission Perspective:

Colette Maloney, European Commission: FP7 Challenge 2 - Cognitive Systems, Interaction, Robotics

11:15 The Industrial Perspective:

- Rainer Bischoff, KUKA Roboter GmbH:
- Christof Eberst, Profactor GmbH: Industrial Services: From Value Added Product(ion) to Life Cycle Orientation
- David Vernon (with contributions from Bernard Sendhoff, CTO, Honda Research Institute Europe): Software Platform Concepts and Cognitive Robotics
- Andy Graham, Independent Consultant: Transport Landmarks
- Hakan Warston, Saab: Situation Awareness in Network Based Command and Control Systems
- Patrick Courtney, Perkin Elmer:

13:00 Lunch

14:00 Student Competition: presentation by winner & prize-giving

14:20 The Academic Perspective:

- James Crowley, INRIA Rhône-Alpes: A Common Sense Approach to Learning Social Interaction
- Stefano Nolfi, CNR-ISTC: On the Relation between cognition and behaviour: an embodied perspective
- José Santos-Victor, Instituto Superior Técnico: Cognitive (Robotic) Systems
- Aaron Sloman, Birmingham University: What's a Research Roadmap For? Why do we need one? How can we produce one?

15:20 Open Forum

16:00 Closing Remarks

David Vernon, Etisalat University College: Overview of euCognition Activities

16:30 Close

Third Six-Monthly Meeting
and
Project Review

29 & 30 June 2007

Room K13
Munich - Munich Airport Conference Centre

Cognitive Architectures

There is a printable version of the meeting agenda here (pdf - 0.10 Mb)

Programme

Friday 29th June 2007: Network Meeting on Cognitive Architectures

09:00	Registration
10:00	David Vernon, euCognition Network Coordinator: Welcome & Overview (pdf - 0.8 Mb)
10:15	Joanna Bryson, University of Bath: AI Architectures or State Requirements for Human-like Action Selection (pdf - 2.7 Mb)
11:15	Coffee
11:30	Jeff Krichmar, The Neurosciences Institute, San Diego: Brain-based Devices: Studying Cognitive Functions with Embodied Models of the Nervous System (pdf - 2.7 Mb)
12:30	Lunch
13:30	Peter Redgrave, University of Sheffield: Selection and Reinforcement Architectures in the Vertebrate Basal Ganglia (pdf - 3.4 Mb)
14:30	Murray Shanahan, Imperial College London: Global Workspace Architecture: Linking Cognition and Consciousness (pdf - 1.0 Mb)
15:30	Aaron Sloman and Jeremy Wyatt, University of Birmingham
16:00	Panel and Audience Discussion
17:30	Poster Session and Wine Reception
	Active Memory Architectures: Bielefeld University (pdf - 0.6 Mb)

Hilton
Molino Stucky, Venice

Giudecca 753
30133 Venice, Italy
Tel / Fax: +39 041 522 1267
E-mail the Hotel

Photo Tour

Venice Attractions

The Rialto Bridge

The Rialto Bridge

Hilton Molino Stucky, Venice

euCognition Meeting

11th January 2008

Fourth Six-Monthly Meeting

10 & 11 January 2008

Hilton Molino Stucky, Venice

SOCIAL COGNITION

A competition for student members of euCognition was held on the afternoon of Thursday 10th January. Friday 11th January was devoted to the theme of social cognition.

Entrants for the competition made a 15 minute presentation on their cognitive systems research topics and a prize was awarded to the student who gave the best (i.e. most engaging and informative) presentation. The prize is a grant to cover the costs of travelling to a cognitive systems workshop or conference of her/his choice, subject to a maximum value of 1000 euro (normal reimbursement rules) plus the cost of registering for the conference/workshop. The winner was Tom Froese, University of Sussex.

There is a printable version of the meeting agenda here (pdf - 40kb)

Programme

Thursday 10th January: Student Competition

14:30 Pick up badges

15:00 Student presentations

- Tom Froese, University of Sussex: An enactive approach to social cognition (pdf - 0.3 Mb)
- Jakub Gemrot, Charles University in Prague: Pogamut 2 - a platform for fast development of virtual agents behavior
- Jaime Gomez Ramirez, Universidad Politecnica de Madrid: Naturalized epistemology for autonomous systems from a systemic approach
- Carlos Hernandez, Universidad Politecnica de Madrid: A proposal for a conscious cognitive architecture
- Antoine Hiolle, University of Hertfordshire: Attachment bonds for autonomous robot development
- Filip Korc, University of Bonn: Modeling spatial interactions for context-based image interpretation
- Emilian Lalev, New Bulgarian University: Simulated social dilemmas game playing in societies of anticipatory agents
- Vincent Martin, INRIA Sophia Antipolis: Cognitive vision: supervised learning for image and video segmentation
- Alberto Montebelli, University of Skovde: On cognition as dynamical coupling: an analysis of behavioral attractor dynamics
- Maria Niessen, University of Groningen: A computational model of sound recognition
- Fabio Ruini, University of Plymouth: Communication and distributed dontrol in multi-agent systems. A neural network-based controller system for MAVs' swarms
- Juraj Simko, University College Dublin: Sequencing of abstract embodied gestures

Friday 11th January: Social Cognition

08:30 Pick up badges

09:00 Welcome

09:15 Fred Cummins, Executive Committee: Consider the following ... (pdf - 3.5 Mb) and notes (pdf - 28 kb)

09:30 Stevan Harnad,Université du Québec à Montréal

10:30 Coffee Break

11:00 Luc Steels, Vrije Universiteit Brussel

12:00 Panel and Audience Discussion

12:30 Lunch

14:00 Student Competition: presentation by winner & prize-giving

14:30 Jordan Pollack, Brandeis University:
Beyond Competition in Evolution and Social Learning Communities (pdf - 4.2 Mb)

15:30 Tea Break

16:00 Michael Arbib, University of Southern California:
Invention and Community in the Emergence of Language: Insights from New Sign Languages (pdf - 1.9 Mb)

17:00 Panel and Audience Discussion

18:00 Close

20:00 Dinner & After-dinner Speech
Jordan Pollack, Brandeis University:
Mindless Intelligence: The Ectomental Manifesto (pdf - 2.2 Mb)

Fifth Six-Monthly Meeting

27 June 2008
Room K13
Municon - Munich Airport Conference Centre

The Role of Anticipation in Cognition

Programme

09:00	Registration
10:00	David Vernon, euCognition Network Coordinator: Welcome & Overview
10:15	Bernhard Hommel, University of Leiden: Becoming an Intentional Agent: The Emergence of Voluntary Action (pdf - 1.8 Mb)
11:15	Coffee
11:30	Juergen Schmidhuber, TU München & IDSIA
12:30	Lunch
14:00	Jun Tani, RIKEN Brain Science Institute, Japan
15:00	Daniel Wolpert, Cambridge University: Probabilistic models of human sensorimotor control (pdf - 6.5 Mb)
16:00	Coffee
16:30	Panel and Audience Discussion
17:30	Close

Associated Events

ABiALS 2008 - The fourth workshop on Anticipatory Behavior in Adaptive Learning Systems, will be held at the same venue the day before the meeting on 26 June 2008.

A Doctoral Consortium will be held at the same venue the day after the meeting on 28 June 2008.

Both these events are official euCognition events and members may claim the travel and subsistence costs of attending them, subject to the conditions set out here.

Sixth Six-Monthly Meeting and Project Review

28 - 29 November 2008

Hilton Molino Stucky, Venice

Cancelled

Due to an unforseen and significant increase in expenditure, primarily due to the remarkable growth in membership and associated costs in funding travel to euCognition events, we no longer have enough funds to cover this meeting and we have been forced to cancel it. The review will be re-scheduled.

Cognitive Systems: Achievements and Challenges

There is a printable version of the meeting agenda here (pdf - 0.10 Mb)

Programme

Friday 28th November: Network Meeting on Achievements and Challenges

08:30	Registration
09:00	David Vernon, euCognition Network Coordinator: Welcome & Overview
09:30	Rick Grush, University of California, San Diego:
10:30	Coffee
11:00	Noel Sharkey, University of Sheffield:
12:00	Panel and Audience Discussion
12:30	Lunch
14:30	Gordon Cheng, National Institute of Information and Communications Technology (NICT):
15:30	Coffee
16:00	Charlie Kemp, Georgia Tech. & Emory University:
17:00	Panel and Audience Discussion
18:00	Close
20:00	Dinner

Saturday 29th November: Project Review (all members are welcome to attend)

euCognition

The European Network for the Advancement of Artificial Cognitive Systems

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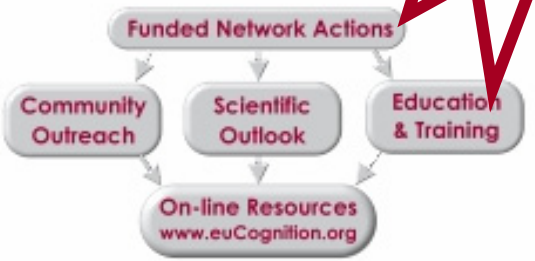

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CogSys
Cognitive Systems

Official euCognition Events

List of Official Events

With a view to encouraging increased interaction between members and leveraging greater cross-fertilization of ideas in our community, the Executive Committee has agreed a policy to support the travel costs of members to designated *official euCognition events.*

The Executive Committee reserves the right to restrict the number of members who will be reimbursed the costs of attending official euCognition events.

Members of euCognition who register for official euCognition events and who wish to apply for reimbursement of travel and subsistence costs (not registration fees) must seek the written approval of the Network Coordinator before booking flights or incurring any associated cost.

If approval is given, then reimbursement of costs is subject to the normal euCognition guidelines and is conditional upon the member contributing a new cognition briefing to the euCognition wiki (http://www.eucognition.org/wiki/index.php?title=Cognition_Briefings). The URL to the briefing must be provided on the submitted claim form and the claim will not be considered unless the cognition briefing has been contributed and prior approval has been granted. Cognition briefings that have been previously contributed, i.e. prior to attending the workshop, do not qualify. A different briefing must be contributed for each claim. The member is free to choose the topic of the briefing.

It is not necessary to contribute a cognition briefing when attending the six-monthly meetings and registration is taken to be a request for approval.

List of Official Events

6th euCognition Six-Monthly Meeting: Achievement and Challenges, Venice, 28-29 November 2008

Workshop on Modelling Cognitive Behaviour (in machines, organisms, organisations), Bristol, UK, 10 October 2008

Workshop on Dynamic Field Theory: Applications in Cognitive Science and Robotics, Minho, Portugal, 8-9 September 2008

Adaptive Mechanisms of the Perception-Action Cycle, Workshop in conjunction with the International Conference of Artificial Neural Networks (ICANN 2008), Prague, 6 September 2008

Summer School on Non-Linear Dynamics and Robots: From Neurons to Cognition, Madrid, 4-8 August 2008

Workshop on Enactive Approaches to Social Cognition, PowderMills Hotel, Battle, UK, 30 August - 1 September 2008

Eighth International Conference on Epigenetic Robotics: Modeling Cognitive Development in Robotic Systems Brighton, UK, 31 July - 2 August 2008

The Role of Emotion in Adaptive Behaviour and Cognitive Robotics SAB '08 Workshop, Osaka, 11-12 July 2008

Doctoral Consortium, Munich, 28 June 2008

5th euCognition Six-Monthly Meeting: The Role of Anticipation in Cognition, Munich, 27 June 2008

ABiALS 2008 - The fourth workshop on Anticipatory Behavior in Adaptive Learning Systems, Munich, 26 June 2008

Course on Multimodal Signals: Cognitive and Algorithmic Issues Vietri Sul Mare, Italy, 21-26 April 2008

Workshop: Models of Thought: Post-Cognitivist Epistemologies Munich, 20-21 February 2008

4th euCognition Six-Monthly Meeting: Social Cognition Venice, 10-11 January 2008

Symposium on Language and Robots Aveiro, Portugal, 10-12 December 2007

euCognition

The European Network for the Advancement of Artificial Cognitive Systems

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Who is it for? Why should I join?

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CogSys
Cognitive Systems

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Main Page

The euCognition Wiki

Welcome to euCognition, the European Network for the Advancement of Artificial Cognitive Systems. This wiki is dedicate
develop this emerging inter-disciplinary area.

euCognition is funded by the European Commission, Unit E5 - Cognition, FP6 Project 26408.

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Introduction

This is a place-holder for a forthcoming article on controversies in cognitive systems research.

It is not yet open for general editing and updates will be made by Aaron Sloman or David Vernon.

If you wish to express a view on a controversy or describe one, please contact one or both of these two people (contact details can be found below).

A temporary link to the draft list of controversies is here .

Current Draft List of Controversies

- Introduction
- How 'cognition' should be defined.
- Whether all mental and neural mechanisms should be regarded as dynamical systems, and modelled as such.
- The role of neural mechanisms.
- Symbol-grounding vs symbol-tethering
- Whether only bottom-up research and emergent phenomena can explain
- The Tabula Rasa Theory of Infant Learning
- Sensorimotor ontologies: Somatic vs Exosomatic
- Approaches to vision: image-based and scene-based
- Statistical vs structural models
- Concepts of causation required by intelligent systems: Humean or Kantian, or both?
- Do intelligent systems need emotions?
- What sort of architecture does an intelligent system need?
- What is Symbolic AI - should it be rejected? Is it needed?
- Is information always in the eye of the beholder?
- Should all learning and development be controlled by a single general purpose learning mechanism?

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Course Material

Here is a collection of teaching resources on cognitive systems.

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1 Cognitive Computer Vision
2 Statistical Pattern Recognition Toolbox
3 Human Vision System
4 Embodying AI -- GOFAI Goes Robotics
5 Further Course Material
5.1 Cognitive Systems Outreach - Teaching Resources

Cognitive Computer Vision [edit]

This course was prepared by Kingsley Sage and Hilary Buxton at the University of Sussex. It focusses mainly on generative models and deals with such issues as Bayesian Networks, Gaussian Mixtures, and Hidden Markov Models. There are 15 lectures and slides for the entire course are available for download from the ECVision website.

Statistical Pattern Recognition Toolbox [edit]

This toolbox implements state-of-the-art pattern recognition methods in Matlab and is made available to the community under a very unrestictive licence. The toolbox was mostly written by Vojtech Franc and has been maintained by him. The seed of the toolbox were methods from the book *Ten lectures on the statistical and structural pattern recognition*, by M.I. Schlesinger and V. Hlavac, Kluwer Academic Publishers, 2002. Since, the toolbox has developed much further.

Part of the toolbox documentation was written with the support from the project ECVision, predecesor of euCognition. This help is appreciated.

This page is maintained by Vaclav Hlavac. Last modification April 25, 2007.

Human Vision System [edit]

Definitions of Cognition

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The following definitions were contributed by members of euCognition in response to a questionnaire . If you haven't completed the questionnaire, please consider doing so.

The definitions are listed in the order in which they were submitted (newest first). See the entry at the end of this article for some thoughts on the validity and usefulness (or not) of this exercise.

Please add your own definition.

---

40. Cognition is the same as life. Life is not definable. As a living system operates it is making cognitive acts. Observer's eye sees all that stuff (including observer too).

Juan Escasany

---

39. Cognitive systems are machines capable of linking symbolic forms to the physical states of their material parts. They do so autonomously and inherently.

Sybe Rispens

---

38. Cognition: the algorithms and representations that determine fitness.

Tjeerd Andringa

---

37. Cognition falsifies the homunculus fallacy.

András Lőrincz

Applications of Cognitive Systems

The following applications were contributed by members of euCognition in response to a questionnaire. If you haven't completed the questionnaire, please consider doing so.

The applications are listed in the order in which they were submitted (newest first). See the entry at the end of this article for some thoughts on the validity and usefulness (or not) of this exercise.

Please add your own application.

---

44. Feature and macro extraction that convert POMDP to MDP for (larger than) two agent learning scenarios -- the emergence of language.

43. Intelligent brain-computer interfaces for disabled and paralysed persons.

42. Cognitive extensions or cognitive prosthetic systems for the disabled (e.g., a summarizing reading machine for the visually-impaired that would let them quickly know if they want to read more).

41. Image interpretation systems that would be able to learn, navigate, reason, revise knowledge, based on both visual information extracted from the image and symbolic knowledge and other heterogeneous information

40. Intelligent agents

39. An application that learned a new task from scratch (either by itself or through instruction) - as opposed to the traditional approach of "performance improvement" on a task pre-programmed by the designer.

38. Dr. Who's K9

37. Driver assist systems, autonomous navigation, systems that can model intentions, real-time realistic face/body animations, cognitive rehabiliation systems

36. A system that can prompt old people with poor short-term memory when they forget what they are doing.

35. A robot system capable of anticipation

34. A simulation environment within which synthetic characters interact themselves and with their context, e.g. by means of gestures, voice and

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Cognition Briefings

Cognition Briefings are short articles written for a non-specialist audience. They aim to provide provide a quick and accessible introduction to a particular topic in cognitive systems with references or links for further reading. They are inspired by the Brain Briefings of the American Society for Neuroscience.

Please contribute a briefing on your favourite topic! We will be adding to this page on a continual basis throughout the life of the project. If you wish to contribute a briefing, but are unsure about questions of either form or content, feel free to contact fred.cummins at ucd.ie for guidance and help.

ACT-R

Affordances: The review of an inspiring notion

Anticipation and anticipatory behavior

Anticipatory eye-movements in infants

Appraisal

Attachment Theory and Artificial Cognitive Systems (pdf)

Autonomy and Cognition

Automatic and Willed Control of Action

Bayesian Multisensory Perception (pdf)

Bayesian Probabilistic Learning in Robots

Biomimetic Robotics

Bounded Online Learning with Kernel-Based Perceptrons

Cellular Nonlinear Networks

CoEvolutionary Approaches in Cognitive Robotic System Design

80 Cognition Briefings

ACT-R
Affordances: The review of an inspiring notion
Anticipation and anticipatory behavior
Anticipatory eye-movements in infants
Appraisal
Attachment Theory and Artificial Cognitive Systems (pdf)
Autonomy and Cognition
Automatic and Willed Control of Action
Bayesian Multisensory Perception (pdf)
Bayesian Probabilistic Learning in Robots
Biomimetic Robotics
Bounded Online Learning with Kernel-Based Perceptrons
Cellular Nonlinear Networks
CoEvolutionary Approaches in Cognitive Robotic System Design
Cognitive and Affective Underpinnings of Risk Attitude
Cognitive Architectures
Cognitive Robotics
Cognitivism

Comparing Emotion Models Used in Agent Architectures
Computational Attention: a Key for Artificial Intelligence
Computationalism
Cross-situational algorithms for vocabulary learning
Distributed Intelligence for Smart Assistive Appliances
Dynamical approaches to development
Enactive approaches to social cognition
Enactive concepts
Extended Cognition: On the boundaries of cognitive systems
Eyes-Neck motor coordination through coupled chaotic systems
Facial Motion Analysis for Human Expression Interpretation
From Image Sequences to Natural-Language Texts
The Haken-Kelso-Bunz Model of the Coordination Dynamics of Two Hands
How can robots help us to understand biological systems? A look at odor localization in the male moth.

European Network for the Advancement of Artificial Cognitive Systems

Homeostasis, Emotion, Cognition
Human Behavior Interpretation from Image Sequences
Human concepts - a matter of ontology or epistemology?
The Integration of Action and Language in Natural and Artificial Cognitive Systems
Ikaria
Interactive Robot Learning
Language and cognitive robots
Learning and Memory in Neural Networks
Level of Detail AI for Computer Games
Long Term Temporal Dependencies in Recurrent Neural Networks
Modelling cultural transmission and evolution: some references
Modeling of mind in real-time
Morphofunctional Machines and Emotion
Multisensory Processing
Naturalized Epistemology and Artificial Cognitive Systems
Perceptual Crossing: A minimalist approach to social interaction
Phenomenologist's view
Postcognitive psychology and affordance - a semiotic synthesis

Reclaiming Symbols
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Representation: The Future of AI Without It
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Simulating Speech Production and Speech Acquisition
Simulating the Evolution of Language with Cognitive Agents and Robots
Soar
Social Learning in Embodied Agents
Some Considerations on Spatial Relations
Some foundational concepts and problems for integrating cognitive architectures and research
Spatial cognition in animals: what about representation?
State Representations in Evolutionary and Robotics Systems
Stereoscopic Cognitive Vision Systems for Mobile Robots– a Case Study

Stereoscopic Cognitive Vision Systems for Mobile Robots– a Case Study
Symbol Grounding in Cognitive Systems
Social Phenomena Related to Cooperation in Prisoner's Dilemma
Symbol Tethering: The myth of symbol grounding
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Subsumption
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Tactile sensing in robots
Teleology
Toward a "Chaotic" Cognitive Architecture
Towards Autonomous, Dynamically Dexterous Robots
Universal Darwinism
What is Cognition? One View of Cognitive Systems
What is "Enactive" Cognition?
Working Memory

euCognition.org Web Site Report

1st December 2008

The following are the top 100 most popular web pages on the site in the previous 12 months.
Web pages are grouped in three categories: euCognition website, euCognition Wiki, ECVision website

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NA 004-1 Student Visit to the SCAI Lab, University of Skövde	Tom Ziemke	Proposal	Outcome: White Paper
NA 004-2 Student Visit to the SCAI Lab, University of Skövde	Tom Ziemke	Proposal	Outcome: Report
NA 004-3 Student Visit to the SCAI Lab, University of Skövde	Tom Ziemke	Proposal	Outcome: White Paper
NA 004-4 Student Visit to the SCAI Lab, University of Skövde	Tom Ziemke	Proposal	Outcome: White Paper
NA 004-5 Workshop on the Role of Emotion in Adaptive Behaviour and Cognitive Robotics	Tom Ziemke	Proposal	Outcome: Workshop Proceedings
NA 007-1 Application and research roadmap for artificial cognitive systems	Bill Sharpe	Proposal	Outcome: Status Report
NA 009-1 Staff Visit to University of Lyons	Peter Ford Dominey	Proposal	Outcome: Working Paper
NA 010-1 Workshop on Information Theory, Neurobiology and Cognition	Juergen Jost	Proposal	Outcome: Workshop Summary
NA 011-1 5th European Neuro-IT and Neuroengineering School	Andreas Engel	Proposal	Outcome: Programme Outcome: Summaries
NA 011-2 9th International Multisensory Research Forum (IMRF) 2008	Andreas Engel	Proposal	Outcome: Forum Website
NA 017-1 Symposium on Grand Challenge: Architecture of Brain and Mind	Aaron Sloman	Proposal	Outcome: Symposium Website
NA 018-1 Student visit to the Humboldt-Universität zu Berlin	Ricardo Sanz	Proposal	Outcome: White Paper
NA 023-1 4th International Workshop on Object Categorization	Ales Leonardis	Proposal	Outcome: Workshop Website
NA 024-2 Scan Paths: Eye Movement Data Sets	Stavri Nikolov	Proposal	Outcome: Report Outcome: Website
NA 028-1 9th International Conference on the Simulation of Adaptive Behavior (SAB '06)	Jean-Arcady Meyer	Proposal	Outcome: Conference Website
NA 030-1 Student visit to the University of Tokyo	Giulio Sandini	Proposal	Outcome: White Paper
NA 032-1 6th International Conference on Computer Vision Systems: Vision for Cognitive Systems	Antonios Gasteratos	Proposal	Outcome: H. Buelthoff Presentation, Outcome: D. Hogg Presentation, Outcome: Student Prize Presentation
NA 044-1 Action Selection for Intelligent Systems	Joanna Bryson	Proposal	Outcome: White Paper
NA 044-3 euCognition Outreach through Book and Web Page	Joanna Bryson	Proposal	Outcome: Outreach Website
NA 044-4 euCognition Outreach through HE Curriculum	Joanna Bryson	Proposal	Outcome: Outreach Website
NA 045-3 Session on EU Cognitive Systems projects at NIST Intelligent Systems PerMis Conference	Patrick Courtney	Proposal	Outcome: Session Website Outcome: Session Digest
NA 047-1 Summer School on Humanoid Robots	Giorgio Metta	Proposal	Outcome: Summer School Website
NA 047-2 Dissemination of embodied cognition results at the Automatica 2008	Giorgio Metta	Proposal	Outcome: Report
NA 047-3 Summer School on Humanoid Robots	Giorgio Metta	Proposal	Outcome: Summer School Website
NA 050-1 Workshop on Embodying Cognition: Towards an Integrated Approach2	Antoni Gomila	Proposal	Outcome: Workshop Material

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Network Actions

- 2006
  - 26 Funded
  - 3 Declined
- 2007
  - 29 Funded
  - 6 Declined
- 2008
  - 28 Funded
  - 2 Declined

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Network Actions

- Every action
  - (meeting, student exchange, tutorial, …)
- Must have a concrete output in a persistent form
  - (document, video, commentary, …)
- Archived on the eCognition website
- Reimbursement of costs conditional on submission
- Contribution of a 'Cognition Briefing' to the Wiki
- Contribution, where appropriate, to the Roadmap

Network Actions

- euCognition does not give 'Grants',
  i.e. cash donations to support the running of events

- All we can do is help defray the actual costs incurred, *i.e.* we need receipts to show actual expenditure

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NA 004-5	Workshop on the Role of Emotion in Adaptive Behaviour and Cognitive Robotics	Tom Ziemke	Proposal	Outcome: Workshop Proceedings
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NA 011-1	5th European Neuro-IT and Neuroengineering School	Andreas Engel	Proposal	Outcome: Programme Outcome: Summaries
NA 011-2	9th International Multisensory Research Forum (IMRF) 2008	Andreas Engel	Proposal	Outcome: Forum Website
NA 017-1	Symposium on Grand Challenge: Architecture of Brain and Mind	Aaron Sloman	Proposal	Outcome: Symposium Website
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NA 024-2	Scan Paths: Eye Movement Data Sets	Stavri Nikolov	Proposal	Outcome: Report Outcome: Website
NA 028-1	9th International Conference on the Simulation of Adaptive Behavior (SAB '06)	Jean-Arcady Meyer	Proposal	Outcome: Conference Website
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The role of emotion in adaptive behaviour and cognitive robotics

SAB '08 workshop, Osaka, Japan, 11-12 July 2008

Organizers

Dr. Robert Lowe, (Robert.Lowe@his.se)
Dr. Anthony Morse, (Anthony.Morse@his.se)
Prof. Tom Ziemke, (Tom.Ziemke@his.se)
University of Skövde, Sweden

Scope of the workshop

Affect and emotion have recently become a hot topic in the study of adaptive behaviour and embodied cognition in both natural and artificial systems. However, the regulatory role of affect/emotion, the underlying mechanisms, and the interaction between affective/emotional and cognitive processes are still not well understood. In order to develop a better understanding of the role of affect/emotion in adaptive behaviour and cognitive robotics, this workshop will bring together research on the following themes:

- ***Affective Mechanisms*** – This includes a range of mechanisms and concepts such as drives, motivation, reward, metabolic/homeostatic/allostatic regulation, appraisal, etc. We are particularly interested in

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NA 032-1	6th International Conference on Computer Vision Systems: Vision for Cognitive Systems	Antonios Gasteratos	Proposal	Outcome: H. Buelthoff Presentation, Outcome: D. Hogg Presentation,

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NA 007-1	Application and research roadmap for artificial cognitive systems	Bill Sharpe	Proposal	Outcome: Status Report
NA 009-1	Staff Visit to University of Lyons	Peter Ford Dominey	Proposal	Outcome: Working Paper
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Two day Multi-Disciplinary Symposium

at AISB'06 on UKCRC Grand Challenge 5:

3rd to 4th April 2006

GC5: Architecture of Brain and Mind: Integrating high level cognitive processes with brain mechanisms and functions in a working robot

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NEWS 10 Dec 2006

- **Research Roadmap Project in euCognition Network**
  One of the important themes of this symposium was the need to identify long term requirements for satisfactory theories and working models, and to use those long term requirements to define a research roadmap. That is also the theme of an initiative that is part of the euCognition network (which funded this symposium). The roadmap initiative is described here. It will be discussed on the second day of the Second Six-Monthly Meeting of euCognition at Munich Airport Conference Centre, 11-12 Jan 2007.

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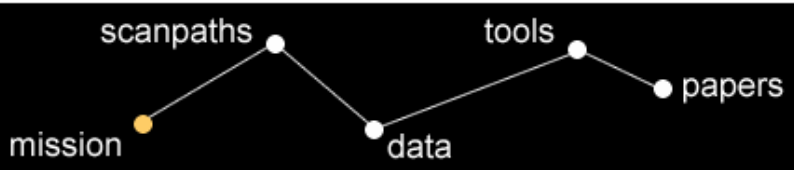

SUPPORTERS

- Rochester Institute of Technology (RIT), USA

- Attentive Displays Ltd, UK and Bulgaria

- euCognition (The European Network for the Advancement of Artificial Cognitive Systems)

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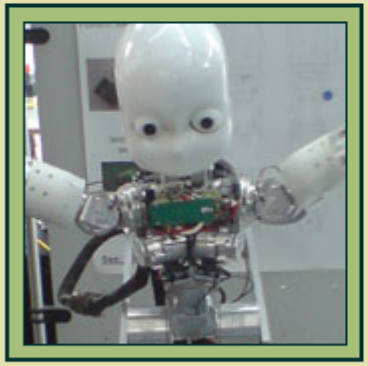
Text only

Thursday 4. Dec 2008

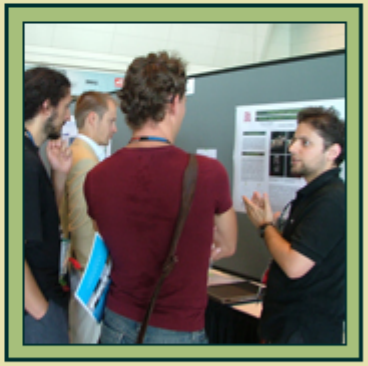
COGNITIVE SYSTEMS OUTREACH

An euCognition Network Action

Meet the Scientists



Explore the Debates



Study at University

Robot Gallery

Department of Computer Science
University of Bath
Send us an email: webmistress

euCognition
www.euCognition.org

COGNITIVE SYSTEMS OUTREACH

An euCognition Network Action

Meet the Scientists

Explore the Debates

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Interviews with Cognitive Systems Practitioners

We are publishing interviews with leading researchers in cognitive systems on this site. We have asked researchers and experts about their area of research, why they became a researcher, and how they got into cognitive systems research in particular.

We have also asked what techniques they use and why these are important, what the major implications of their work are, who benefits from their research, what the most satisfying about cognitive systems research is, and what they think are the main challenges for the future.

- Prof. Rolf Pfeifer, Artificial Intelligence Lab, Department of Informatics, University of Zurich
- Dr Joanna J Bryson, Department of Computer Science, University of Bath
- Prof. Mark Steedman, Cognitive Science in the School of Informatics, University of Edinburgh
- Prof. David Vernon, Computer Engineering, Khalifa University, Coordinator euCognition
- Prof. Stevan Harnard, University of Southampton, Université du Québec à Montréal
- Prof. Christian Balkenius, Cognitive Science, Lund University

COGNITIVE SYSTEMS OUTREACH

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Meet the Scientists

Explore the Debates

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Explore the Debates

This page is still being under construction. Please email us if you have suggestions of debate topics.

Debates

- Action selection
- Artificial consciousness
- Biologically inspired, neural net
- Classical architecture / non-classical architecture
- Ethics
- Evolutionary robotics
- Human robot interaction
- Machine learning
- Perception
- Symbol grounding problem
- What are cognitive systems?

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COGNITIVE SYSTEMS OUTREACH

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Study Cognitive Systems at University

Where can I study cognitive systems?

Here is a list of some places in Europe that have a curriculum within the field of cognitive systems:

Universities (please send us links to your study programmes)

- EPFL - Ecole Polytechnique Fédérale de Lausanne, Switzerland en
- University courses related to Cognitive Sciences in the Czech Republic, 2007 cs
- University of Bielefeld, Germany en
- University of Edinburgh, UK en
- University of Genoa, Italy en
- University of Helsinki, Finland en
- University of Linköping, Sweden en
- University of Lund, Sweden en
- University of Plymouth, UK (BSc and MSc) en

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COGNITIVE SYSTEMS OUTREACH

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Meet the Scientists

Explore the Debates

Study at University

Robot Gallery

Robot Gallery

Robot definition

If you have worked with a robot and would like it to be a part of our robot gallery please send us an email with an image and a short description. You can also send us links to existing web pages of your robots and related technology. Robots below with a flag from the European Union were funded by the EU.

Robots from the European Union

- iCub robot 2008
- REEM-B humanoid robot 2008
- Phobot using Lego NXT 2008
- Symbrion swarm robots 2008
- ARMAR puts cup in dishwasher 2008
- Robotic fish 2007

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Cognitive Systems Outreach

navigation

- Main Page
- Recent changes
- Cognitive Systems Outreach Website
- euCognition Website
- Help

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- Related changes
- Upload file
- Special pages
- Printable version
- Permanent link

Main Page

Cognitive Systems Outreach Wiki

Welcome to the Cognitive Systems Outreach Wiki. Cognitive systems are intelligent entities that exploit real-time cognition (they thinks for themselves) in behaving in interaction with their world. As a field, Cognitive Systems is a fast-developing new approach to understanding intelligent systems, and building artificial ones. It is founded on many different disciplines.

This page was set up as a part of The Cognitive Systems Outreach Project. It is intended mostly for academics and other professionals involved in Cognitive Systems, so that we can share teaching and other material. We appreciate all contributions! Please create an account and login to edit these pages, using the link in the upper-right-hand corner. We appreciate additions and corrections to any of the projects and lists below. If you have any questions please contact Veronica Sundstedt (Cognitive Systems Outreach Officer).

Contents [hide]

1 Curriculum Project
2 Teaching Resources
3 Robot Gallery
4 People and Groups
5 Projects
6 Blogs and Seminars
7 Information on using Mediawiki
8 Creative Commons License
9 The Cognitive Systems Outreach Project

Curriculum Project

An ideal curriculum for teaching a course on cognitive systems (natural and/or artificial) would have to embrace a huge number of topics. This wiki page has a list of topics related to cognitive systems with input from people working in the field. This is a suggested (non-exhaustive) list of topics related to cognitive systems inspired by the model curriculum in the euCognition wiki. This list of topics is very much a work in progress. We hope that other researchers will modify it, build on it, argue over it, and develop it collaboratively into a useful shared resource.

- Cognitive Systems List of Topics

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TUE-AM2

Special Session I: Cognitive Systems of EU Cognition Programme

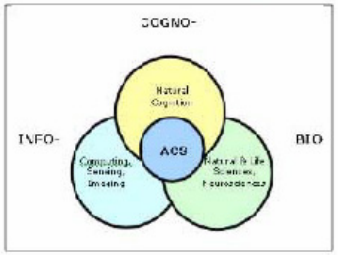
Organizer: Patrick Courtney

Cognitive systems of EU cognition programme

Patrick Courtney

euCognition
www.eucognition.org

- A significant research programme in cognitive systems is now underway within the European Union with some €40OM committed. This programme focuses on developing the technology and the necessary scientific understand to provide significant levels of autonomy and decision making into computer-based systems. Active research approaches in the area range broadly, from traditional rule-based AI, through to connectionist, dynamical and emergent systems and include embodied systems combining computing and robotic systems.
- One major practical motivation for the development of cognitive systems is to overcome the problems faced by traditional computer systems in dealing robustly with the uncertainties and changing demands that characterise the real world. Potential applications cited span a very broad range and have included care-giver robots, and easier-to-use interfaces. One major approach that has emerged has been in the use of open source platforms in order to share experiences and run larger scale experiments.
- This special session is dedicated to the development of the tools and methodologies that are in development within the EU, with an emphasis on the open source approaches with a view to performance analysis and comparison, and to stimulate discussion over cooperative research especially use of open platforms



An Open-Source Simulator for Cognitive Robotics Research: The Prototype of the iCub Humanoid Robot Simulator

V. Tikhanoff, P. Fitzpatrick, F. Nori, L. Natale, G. Metta, A. Cangelosi

This paper presents the prototype of a new computer simulator for the humanoid robot iCub. The iCub is a new open-source humanoid robot developed as a result of the "RobotCub" project, a collaborative European project aiming at developing a new open-source cognitive robotics platform. The iCub simulator has been developed as part of a joint effort with the European project "ITALK" on the integration and transfer of action and language knowledge in cognitive robots. This is available open-source to all researchers interested in cognitive robotics experiments with the iCub humanoid platform

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Ms. Viviane Reding, EU Commissioner for Information Society and Media and Prof. Giulio Sandini, RobotCub coordinator

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Veni Vidi Vici '08

The RobotCub Summer School

The School

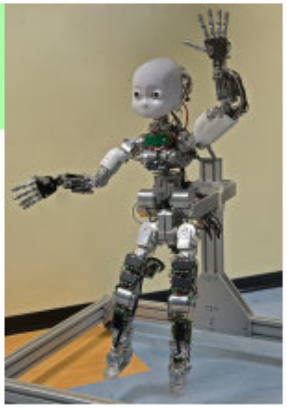
- Main Page
- Venue Information
- Important Dates
- Who We Are

Organizations

- RobotCub project
- IIT
- LIRA-Lab
- euCognition
- CogSys

Welcome to the RobotCub Summer School!

We are extremely grateful to the support of the euCognition network (http://www.eucognition.org/) which allowed us to accept several excellent candidates who would otherwise not have been able to fund participation in the school.



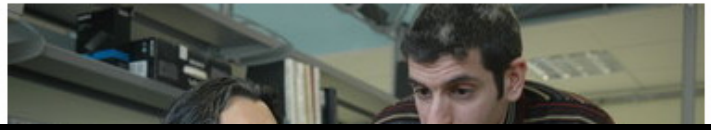
The RobotCub Summer School, "Veni Vidi Vici," serves to consolidate and disseminate skills in software engineering for humanoid robots. This year it was held in Sestri Levante, Italy, 21-30 July, 2008.

- The school wiki (all the fun stuff happens here)
- Venue information for 2008
- The Call for Participation
- Last year's school, VVV '07 (participants)
- The 2006 school, VVV '06 (participants)
- The RobotCub Project
- The RobotCub Wiki

If you have any question or concern, please contact summerschool@robotcub.org.

Aim

The RobotCub Summer School, "Veni Vidi Vici", serves to consolidate and disseminate skills in software engineering for humanoid robots. Our goal is to foster long-lived academic collaboration on robot software across the boundaries and lifetimes of individual projects. The school is hosted by the



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Dynamic Field Theory & Applications

September 8-9, 2008
Universidade do Minho, Braga, PORTUGAL

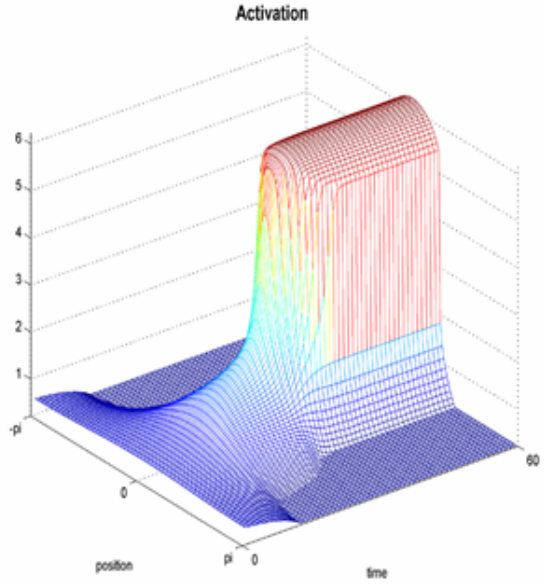
Aims: This workshop aims to provide a comprehensive overview on recent advances in Dynamic Field Theory and its application in Robotics and Cognitive Science. The main goal is to promote the exchange of ideas between researchers from different disciplines who are using (or want to use) Dynamic Fields as a theoretical framework for solving problems in Cognitive Science, Neuroscience and Robotics. The workshop brings together experts who have made important contributions in a theoretical and conceptual level or in the application domain.

Local organisers: Wolfram Erlhagen (Minho, Portugal), and Anwar Hussein (Minho, Portugal)

Location: Edifício dos Congregados, Avenida Central, Braga, Portugal.

Financial Support: The event is an official euCognition workshop. Members who attend are eligible to claim their travel and subsistence costs.

Participation: People who wish to particpate either to learn more about Dynamic Field Theory or to give a presentation should contact Wolfram Erlhagen by **June 15 2008.**



Speakers

Estela Bicho **(Minho, Portugal).** ***A dynamic neural field architecture for flexible and fluent human-robot interaction.*** abstract

Steven Coombes **(Nottingham, UK).** ***Bumps, breathers, and waves in a neural network with threshold accomodation.*** abstract

Raymond Cuijpers **(NICI Nijmegen, The Netherlands).** ***Bayesian decision making using neural fields.*** abstract

Alexander Gepperth **(Honda Research Institute, Germany).** ***Neuro-dynamic systems for real-world***

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CogSys 2008 karlsruhe_banner

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Fakultät für Informatik

International Conference on Cognitive Systems (CogSys 2008)

University of Karlsruhe, Karlsruhe, Germany
April 2 - 4, 2008

CogSys
Cognitive Systems

The 2008 International Conference on Cognitive Systems will be held on April 2 to 4, 2008 in Karlsruhe, Germany. The conference series started in Bled, Slovenia in the year 2004 and traveled to Nijmegen, Netherlands in the year 2006. Both events were organized to share the progress that had been made in the research community around the sponsored European projects within the area of Cognitive Systems.

CogSys 2008 will be held in Karlsruhe as the first international conference on cognitive systems. The conference will bring together researchers from different fields to identify current research trends, to present and to review recent work and to speculate about the future of cognitive systems.

News

- **March 28th, 2008: Information on poster presentations format available.**
- **March 21st, 2008: Updated information on how to reach the conference site**

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The International Association for Pattern Recognition
Education Committee & Resources

Researcher and Student Resources

This web site is intended as a resource for students and researchers in pattern recognition and fields that use pattern recognition techniques, such as machine learning, computer vision, cognitive systems, speech and language understanding, etc.

Main Research and Education Resources

FIELD	Tutorials, Surveys	Explanations	Online Demos	Datasets	Books	Code
Symbolic PR	tutorials	explanations	demos	data	books	code
Statistical PR	tutorials	explanations	demos	data	books	code
Machine Learning	tutorials	explanations	demos	data	books	code
1D signal PR	tutorials	explanations	demos	data	books	code
2D image analysis, computer vision	tutorials	explanations	demos	data	books	code

NA 092-1	6th Czech-Slovak workshop on Cognition and Artificial Life	Jiri Wiedermann	Proposal	Outcome: Workshop Abstracts
NA 094-1	Cognitive robotics: from laboratory to media	Catalin Buiu	Proposal	Outcome: Cognitive Vision Case Study
NA 097-1	External Symbol Grounding Workshop 2006 (ESG2006)	Angelo Cangelosi	Proposal	Outcome: Workshop Abstracts
NA 097-2	Student visit to the University of Genoa	Angelo Cangelosi	Proposal	Outcome: White Paper
NA 097-3	Student visit to the University of Plymouth	Angelo Cangelosi	Proposal	Outcome: White Paper
NA 097-4	Student visit to the University of Genoa	Angelo Cangelosi	Proposal	Outcome: White Paper
NA 097-5	Student visit to the University of Plymouth	Angelo Cangelosi	Proposal	Outcome: White Paper
NA 097-6	Staff visit to the University of Plymouth	Angelo Cangelosi	Proposal	Outcome: Cognition Briefing
NA 098-1	Symposium on Language and Robots 2007	Tony Belpaeme	Proposal	Outcome: Proceedings (11Mb) Outcome: Symposium Website
NA 105-1	Connect with AI: cognitive robot education outreach initiative	Sethu Vijayakumar	Proposal	Outcome: Outreach Website
NA 108-1	Staff visit to the University of Genoa	Cecilio Angulo	Proposal	Outcome: White Paper Outcome: Website
NA 119-1	Staff Visit to the University of York	Giovanni Pezzulo	Proposal	Outcome: White Paper
NA 119-2	ABiALS 2008 - The fourth workshop on Anticipatory Behavior in Adaptive Learning Systems	Giovanni Pezzulo	Proposal	Outcome: Workshop Website
NA 120-1	Student Visit to the SCAI Lab, University of Skövde	Anthony Morse	Proposal	Outcome: White Paper
NA 126-1	Workshop on Modelling Cognitive and Biological Autonomy	Alvaro Morena	Proposal	Outcome: Workshop Website
NA 130-1	Models of Thought Workshop	Brendan Wallace	Proposal	Outcome: Workshop Materials
NA 133-1	Student Visit to the Max Planck Institute Evolutionary Anthropology, Leipzig	Stefano Nolfi	Proposal	Outcome: White Paper
NA 140-1	Barcelona cognition, brain and technology summer school	Paul Verschure	Proposal	Outcome: Summer School Website
NA 141-1	Symposium on Imitation in Animals and Artifacts	Manuel Lopes	Proposal	Outcome: Symposium Proceedings

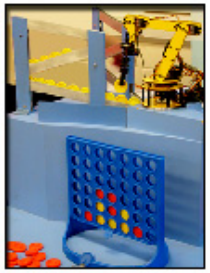
Technical

Educational material

Video/Photo

Operating Instructions

Connect with AI



We have developed a simple yet "intelligent" robotic platform to interact with the public and generate interest and discussion. Several of these autonomous Connect4 playing robots have been constructed for use as demonstration tools at university open days, science festivals and school visits. The robots have proved to be a great success in capturing the interest of children and adults alike. The simple idea of having a robot playing a popular game against human opponents in the real world appeals to a broad spectrum of people including those who have had no previous interest in artificial intelligence.

As the robot platform integrates work from machine vision, artificial intelligence and robotic control, it has allowed staff manning demonstrations to:

- engage people in discussion about each of these fields,
- provide an opportunity to get people to think about how computers' abilities differ from our own
- give them a brief exposure to the world of cognitive science and artificial intelligence.

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wapcv 08

5th international workshop on attention in cognitive systems
associated with icvs2008

12 May 2008,
Santorini, Greece

scope
news
important dates
organisation
author information
program
invited talks
venue
registration
accommodation
contact

author registration
author login
reviewer login

WAPCV 2007
WAPCV 2005
WAPCV 2004
WAPCV 2003

Scope

>> Workshop Program <<

The capacity to attend to the relevant has been part of AI systems since the early days of the discipline. Currently, with respect to the design and computational modeling of artificial cognitive systems, selective attention has again become a focus of research, and one sees it important for the organization of behaviors, for control and interfacing between sensory and cognitive information processing, and for the understanding of individual and social cognition in humanoid artifacts.

While visual cognition obviously plays a central role in human perception, findings from neuroscience and cognitive psychology have informed us on the perception-action nature of cognition. In particular, the embodiment in sensory-motor intelligence requires a continuous spatio-temporal interplay between interpretations from various perceptual modalities and the corresponding control of motor activities. In addition, the process of selecting information from the incoming sensory stream, in tune with contextual processing on a current task and global goals, becomes a challenging control issue within the viewpoint of focused attention. Seemingly attention systems must operate at many levels and not only at interfaces between a bottom-up driven world interpretation and top-down driven information selection. One may consider selective attention as part of the core of artificial cognitive systems. These insights have already produced paradigmatic changes in several AI-related disciplines, such as, in the design of behavior based robotics and the computational modeling of animats.

Within the context of the engineering domain, the development of enabling technologies such as autonomous robotic systems,

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NA 173-1	Kazimierz Naturalised Epistemology Workshop	Marcin Milkowski	Proposal	Outcome: Workshop Website Outcome: White Papers Outcome: Presentations
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NA 220-1	Doctoral Consortium	Samia Nefti	Proposal	Outcome: Abstracts Outcome: Workshop Website
NA 225-1	Industry Forum	Erich Rome	Proposal	Outcome: Event Website
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NA 297-1	Workshop on Interactive Robot Learning	Danijel Skocaj	Proposal	Outcome: Workshop Summary Outcome: Workshop Proceedings

Proceedings of the Seventh International Conference on Epigenetic Robotics

Berthouze, L., Prince, C. G., Littman, M., Kozima, H., and Balkenius, C. (2007). Proceedings of the Seventh International Conference on Epigenetic Robotics: Modeling Cognitive Development in Robotic Systems. *Lund University Cognitive Studies, 135.* Lund: LUCS.

ISSN 1101-8453
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ECAL 2007

Associated Event
September 9-10, 2007
Lisbon, Portugal

Workshop
Dynamical Approaches to Development: Beyond the Metaphor

- Workshop Overview
- Speakers
- Organisation & Program
- Registration

Workshop themes

- Dynamical models
- Developmental Systems Theory
- Epigenetic Robotics
- Field Theory models
- Dynamical approaches to cognitive development
- Generative modelling

Programme Committee

- Linda B. Smith
- Randall D. Beer
- Meredith West
- Gregor Schöner
- Ezequiel Di Paolo
- John Spencer
- Karola Stotz
- Olaf Sporns
- Luc Berthouze

Contacts

Alfredo Pereira

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INDIANA UNIVERSITY

Workshop Overview

- **A cross-disciplinary meeting at ECAL2007**
- This is a two day workshop to be held as an associated event of the ECAL2007 conference. It will take place in the CCB - Belem Cultural Centre, on the 9th and 10th of September 2007. The second day is part of the main conference's workshops.

Studying development is about understanding change. Development itself is a consequence of intertwined processes that occur in time and at multiple levels of analysis. Development is more than growth, maturation or the unfolding of a predefined program. Under the microscope of detailed empirical studies in animals and humans, ontogeny shows some of the same qualitative properties of complex adaptive systems (e.g. self-organization, non-linear dynamics, multicausality).

For this workshop we have brought together researchers of both natural and artificial systems to discuss the nature of developmental change and its role in understanding the behavior of intelligent systems. Specific examples that illustrate the multileveled and multi-time scaled nature of developmental change are present throughout the workshop.

The broad topics of the invited talks cover the nature of psychological development, both at the behavioral and biological levels, the broadest time scale of change (evolution) and its bidirectional relationship to development, dynamical field theory as a approach to understanding development and studies of development in artificial systems, both in robotic platforms and in artificial life models. The workshop will include ample time for discussion and two small-group brainstorming activities.

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Workshop on Enactive approaches to Social Cognition

Aug. 30 - Sep. 1, 2008 (mid-Sat. to mid-Mon.)

Battle, near Hastings, East Sussex, UK

- For details of all the participants click here.
- For information about the workshop program, suggested reading material, directions to venue, etc., please click here.

There is a growing consensus in the cognitive sciences that cognition is best understood as an embodied-embedded dynamical process which spans a systemic whole consisting of an agent's brain, body and world. This has had significant consequences for modeling cognitive behaviour, but has not yet been addressed much in the modelling of social interactions, which is still strongly influenced by the traditional

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CogSys Doctoral Consortium

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Programme

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- M. Esmaeili, P. Giordano, A. Vancheri: Cognitive behavior modeling in Multi-Agent systems in a dynamic environment [pdf]
- Juraj Simko: Sequencing Embodied Gestures in Speech [pdf]
- Eduardo Coutinho and Angelo Cangelosi: Computational and psycho-physiological investigations of musical emotions [pdf]
- Renaud Detry, Nicolas Pugeault, Justus Piater: Probabilistic Pose Recovery Using Learned Hierarchical Object Models [pdf]

NA 149-1	Student Visit to the University of Oxford	Pau Biaget	Proposal	Outcome: White Paper
NA 159-1	PASCAL Workshop on Modelling Cognitive Behaviour (in machines, organisms, organisations)	Nello Christianini	Proposal	Outcome: Workshop Website
NA 161-1	The 7th Int. Conf. on Epigenetic Robotics: Modeling Cognitive Development in Robotic Systems	Christopher Prince	Proposal	Outcome: Conference Website and Procee
NA 173-1	Kazimierz Naturalised Epistemology Workshop	Marcin Miłkowski	Proposal	Outcome: Workshop Website Outcome: White Papers Outcome: Presentations
NA 177-1	International Conference on Affective Computing and Intelligent Action)	Lola Canamero	Proposal	Outcome: Conference Website Outcome: Doctoral Consortium Proceedings
NA 179-1	Workshop on Natural and Artificial Intelligence	Alex Kacelnik	Proposal	Outcome: Workshop Website
NA 193-1	Workshop on Social Learning in Embodied Agents	Davide Marocco	Proposal	Outcome: Workshop Website
NA 198-1	Course on Multimodal Signals: Cognitive and Algorithmic Issues	Anna Esposito	Proposal	Outcome: Course Programme
NA 205-1	Workshop on Dynamical Approaches to Development: Beyond the Metaphor	Rachel Wood	Proposal	Outcome: Workshop Website
NA 217-1	Workshop on Enactive Approaches to Social Cognition	Steve Torrance	Proposal	Outcome: Workshop Website
NA 219-1	Workshop on adaptive mechanisms of the perception-action cycle	Vassilis Cutsuridis	Proposal	Workshop Website
NA 220-1	Doctoral Consortium	Samia Nefti	Proposal	Outcome: Abstracts Outcome: Workshop Website
NA 225-1	Industry Forum	Erich Rome	Proposal	Outcome: Event Website
NA 224-1	The Eight International Conference on Epigenetic Robotics	Luc Berthouze	Proposal	Outcome: Event Website and Proceedings
NA 240-1	Summer Institute on Social Cognition	Stevan Harnad	Proposal	Outcome: Event Website
NA 243-1	Staff Visit	Francesco Orabona	Proposal	Outcome: Cognition Briefing
NA 297-1	Workshop on Interactive Robot Learning	Danijel Skocaj	Proposal	Outcome: Workshop Summary Outcome: Workshop Proceedings

Cognitive Systems Industry Day

Call for Participation

January 29th 2008, Schloss Birlinghoven, Sankt Augustin, Germany

Purpose of the Cognitive Systems Industry Day

- to present several representative R&D projects in the area of Cognitive Systems and Robotics
- to give an introduction to the European Commission's Cognitive Systems and Robotics research strategy
- to provide an opportunity for discussions between industry and scientific community.

Participation

The targeted audiences are stakeholders from industry that are interested to learn about the current state of the art in Cognitive Systems and Robotics.

The participation in the event is free, but a registration is required.

Registration

NA 149-1	Student Visit to the University of Oxford	Pau Biaget	Proposal	Outcome: White Paper
NA 159-1	PASCAL Workshop on Modelling Cognitive Behaviour (in machines, organisms, organisations)	Nello Christianini	Proposal	Outcome: Workshop Website
NA 161-1	The 7th Int. Conf. on Epigenetic Robotics: Modeling Cognitive Development in Robotic Systems	Christopher Prince	Proposal	Outcome: Conference Website and Procee
NA 173-1	Kazimierz Naturalised Epistemology Workshop	Marcin Miłkowski	Proposal	Outcome: Workshop Website Outcome: White Papers Outcome: Presentations
NA 177-1	International Conference on Affective Computing and Intelligent Action)	Lola Canamero	Proposal	Outcome: Conference Website Outcome: Doctoral Consortium Proceedings
NA 179-1	Workshop on Natural and Artificial Intelligence	Alex Kacelnik	Proposal	Outcome: Workshop Website
NA 193-1	Workshop on Social Learning in Embodied Agents	Davide Marocco	Proposal	Outcome: Workshop Website
NA 198-1	Course on Multimodal Signals: Cognitive and Algorithmic Issues	Anna Esposito	Proposal	Outcome: Course Programme
NA 205-1	Workshop on Dynamical Approaches to Development: Beyond the Metaphor	Rachel Wood	Proposal	Outcome: Workshop Website
NA 217-1	Workshop on Enactive Approaches to Social Cognition	Steve Torrance	Proposal	Outcome: Workshop Website
NA 219-1	Workshop on adaptive mechanisms of the perception-action cycle	Vassilis Cutsuridis	Proposal	Workshop Website
NA 220-1	Doctoral Consortium	Samia Nefti	Proposal	Outcome: Abstracts Outcome: Workshop Website
NA 225-1	Industry Forum	Erich Rome	Proposal	Outcome: Event Website
NA 224-1	The Eight International Conference on Epigenetic Robotics	Luc Berthouze	Proposal	Outcome: Event Website and Proceedings
NA 240-1	Summer Institute on Social Cognition	Stevan Harnad	Proposal	Outcome: Event Website
NA 243-1	Staff Visit	Francesco Orabona	Proposal	Outcome: Cognition Briefing
NA 297-1	Workshop on Interactive Robot Learning	Danijel Skocaj	Proposal	Outcome: Workshop Summary Outcome: Workshop Proceedings

8 Epigenetic Robotics

Processes of Change: Development and Evolution

Important Dates

Paper submission: 30 April 2008
Paper notification: 31 May 2008
Camera-ready: 30 June 2008
Conference: 30 - 31 July 2008 (NEW DATE)

Related Events

Artificial Life XI
Language Learning and Cognition

Past Proceedings

Epigenetic Robotics 2007
Epigenetic Robotics 2006
Epigenetic Robotics 2005
Epigenetic Robotics 2004
Epigenetic Robotics 2003
Epigenetic Robotics 2002
Epigenetic Robotics 2001

Sponsors

euCognition

Home

In the past 7 years, the Epigenetic Robotics annual conference has established itself as a unique place where original interdisciplinary research from developmental sciences, neuroscience, biology, cognitive robotics, and artificial intelligence is being presented.

Psychological theory and empirical evidence is being used to inform epigenetic robotic models, and these models can be used as theoretical tools to make experimental predictions in developmental psychology.

As in previous years, we encourage submissions from researchers whose work broadly intersects the fields (and subdisciplines) of developmental science, robotics, and neuroscience. As a special feature, this year we are also highlighting a specific organizational theme: evolution and development as related processes of change.

The particular focus of this theme is on the dynamic interplay between ontogeny and phylogeny. In other words, how do new abilities and skills that emerge during development influence the path of evolution, and how do subsequent evolutionary changes help to create new developmental trajectories? This is a question that fits well within the mission of epigenetic robotics, as it spans not only a wide range of research areas and academic disciplines (e.g., biology, psychology, AI and machine learning, linguistics, anthropology, etc.) but also a broad spectrum of spatial and temporal scales (e.g., neurons, brains, social communities, cultures, etc.).

We are especially interested in submissions that will enhance the emerging dialog between evolutionary and developmental perspectives. Relevant topics include, but are not limited to:

- Artificial embryology
- Morphogenesis, differentiation, and regulation
- Behavioral inheritance and social learning
- The evolution of language acquisition
- Phylogenetic constraints on perceptual processing (e.g., face perception)

euCognition

The European Network for the Advancement of Artificial Cognitive Systems

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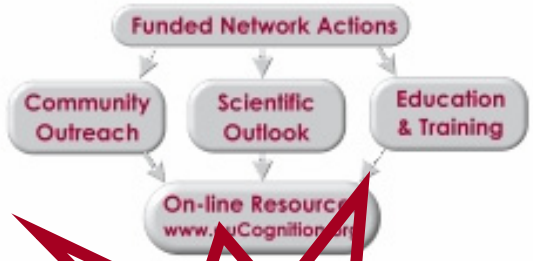


Next Meeting | Roadmap | Wiki

What is euCognition? What does it do?

Who is it for? Why should I join?

CogSys
Cognitive Systems

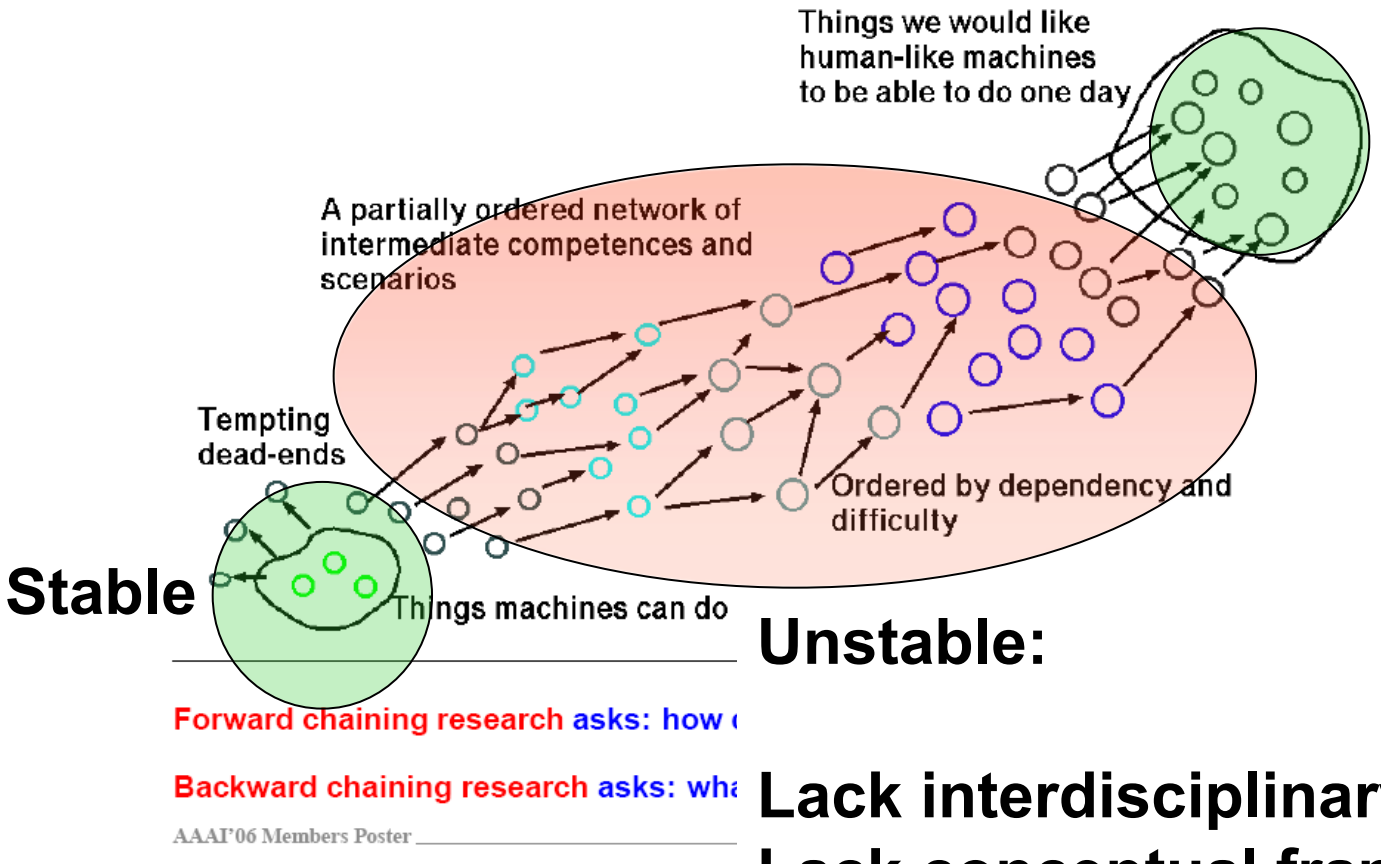
European Network for the Advancement of Artificial Cognitive Systems

Develop a dialogue between cognitive systems research and industry applications that promotes the emergence of a shared systems engineering research agenda with industry impact

Requirement-led

Capability-driven

Picture of a Research Roadmap



Unstable:

Lack interdisciplinary cohesion
Lack conceptual framework
Lack shared application focus

Source: Aaron Sloman, AAAI'06

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Research Roadmap

One of the main goals of the euCognition network is to create a research roadmap that will help identify the functional and non-functional attributes of cognitive systems and focus attention on key scientific challenges in realizing them.

Plan A

Our original plan was to create the research roadmap in a variety of ways. Based on a canvass of the views of members of euCognition and staff in the EU Commission Cognition, Interaction, and Robotics unit, the Executive Committee agreed a specific Research Roadmap Agenda, including an exposition of the purpose of the roadmap, the approach to be used in developing it, the required outcomes, and an outline plan.

Plan B

However, in the immediate follow-up to the Roadmap Kick-off Meeting at the second six-monthly meeting in January 2007, it became clear that the challenge of creating a research roadmap was much greater than we had first thought, in terms of scope, complexity, and the effort required to complete the roadmap. Consequently, it was decided to rescope the goal and in March 2007 the Executive Committee adopted an Alternative Research Roadmap Agenda with a three-pronged approach, including interviews with key researchers, a series of debates, and a survey of all members of euCognition.

This three-pronged approach should be seen as a sort of middle ground between the conventional forward-chaining approach to road-mapping and backward-chaining approach favoured in the original Research Roadmap Agenda.

Plan B represented a shift in strategy, emphasizing less the development a full-blown roadmap and focusing more on a *Learning Journey*: a series of actions that support the evolution of the discipline through the sharing of viewpoints and increased interaction among the diverse set of stakeholders. To date Plan B be has not been put into effect.

Plan C

Research Roadmap Agenda with a three-pronged approach, including interviews with key researchers, a series of debates, and a survey of all members of euCognition.

This three-pronged approach should be seen as a sort of middle ground between the conventional forward-chaining approach to road-mapping and backward-chaining approach favoured in the original Research Roadmap Agenda.

Plan B represented a shift in strategy, emphasizing less the development a full-blown roadmap and focusing more on a *Learning Journey*: a series of actions that support the evolution of the discipline through the sharing of viewpoints and increased interaction among the diverse set of stakeholders. To date Plan B be has not been put into effect.

Plan C

To bootstrap the *Learning Journey* process, members of the Executive Committee volunteered to organize a series of workshop over the remaining period of the project. The titles of these workshops are as follows.

- Extracting Requirements of a Cognitive Architecture from research in human cognitive development (Peter Ford Dominey)
- The Role of Information in Cognition (Jürgen Jost)
- Mechanisms of coordination in a cognitive system (Christoph von der Malsburg & Andreas Engel)
- Applications, Requirements, Capabilities (Erik Hollnagel & Patrick Courtney)
- Attention, Vision, Robotics, and Cognitive Systems (Markus Vincze)
- Affect and Emotion in Cognition (Tom Ziemke)
- Cognition and Culture: the enactive approach (Bill Sharpe & Fred Cummins)

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Learning Journey: Extracting Requirements of a Cognitive Architecture

Venue: Lyons

Date: October 27, 2007

Participants: Giorgio Metta, Patrick Courtney, Peter Ford Dominey, Felix Warneken, Collin Bannard

Organized by: Peter Ford Dominey

Report written by: Peter Ford Dominey

The workshop took place over two days - October 22 and 23. It addressed how research from the developmental cognitive sciences can be analysed in order to extract requirements on cognitive systems. We invited Felix Warneken who is a developmental cognitive scientist from the MPI-EVA in Leipzig, along with Collin Bannard - a develpmental computational linguist, to interact with cognitive roboticists and systems people. The workshop was quite insightful.

The main conclusions are summarized here:

[1]

Related to this activity, we present an example case study here:

[2]

Presentations from the workshop will be available soon.

Back to Research Roadmap

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Learning Journey: The Role of Information in Cognition

Venue: Leipzig

Date: March 28-29, 2008

Main discussants: Olaf Breidbach, Thomas Breuel, Peter Dayan, Sophie Deneve, Christoph von der Malsburg

Organized by: Jürgen Jost

Report written by: Eckehard Olbrich, Nils Bertschinger, Jürgen Jost

Contents [hide]

1 Information
2 Bayesian decision theory and information processing
3 Constraints
4 Neural networks
5 Evolution

Information

[edit]

According to Shannon, information is reduction of uncertainty about specific signals drawn from a known distribution. Information theory is a tool for deriving bounds and checking for optimality.

Bayesian decision theory and information processing

[edit]

Bayesian decision is a provably optimal method for taking decisions on the basis of incomplete information. Bayesian parameter estimation avoids the problem of overfitting. Thus, Bayesian schemes yield formal methods against which actual performance of both neural and artificial cognitive systems can be compared.

The question is whether, how, and in particular at which scale (individual synapses or neurons, populations of neurons, entire brains)such schemes

Learning Journey: Applications, Requirements, Capabilities

Venue: Ecole des Mines, Paris

Date: March 20, 2008

Organized by: Patrick Courtney, Bill Sharpe, and Erik Hollnagel

Éxecutive Summary

A significant research programme in cognitive systems is now underway. This focuses on the developing and technology and the necessary scientific understand to provide significant levels of autonomy and decision making into computer-based systems. Active research approaches in the area range broadly, from traditional rule-based AI, through to connectionist, dynamical and emergent systems and include embodied systems combining computing and robotic systems.

One major practical motivation for the development of cognitive systems is to overcome the problems faced by traditional computer systems in dealing robustly with the uncertainties and changing demands that characterise the real world. Potential applications cited span a very broad range and have included care-giver robots, and easier-to-use interfaces. In order to make link with the developing discipline of cognitive systems, a new level of multidisciplinary dialogue on the centre ground is needed to build the concepts and community of Cognitive Systems. The objective on this activity is to identify stepping stones between applications and research into cognitive systems.

The domains of aerospace and automotive are examined with a view to identifying how the issues of autonomy and decision making are addressed, and trends which call for increased autonomy. Two specific areas are selected for further discussion: context-aware detection; and the coordination of multiple cognitive agents using contracts. Other possible areas are briefly indicated and potential next steps are suggested.

The full report is available here: [1]

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Learning Journey: Attention, Vision, Robotics, and Cognitive Systems

Venue: Santorini

Date: 15 May 2008

Participants: Monique Thonnat, Ute Bauer-Wersing, Antonis Argyros, Jannik Fritsch, John Tsotsos, Heiko Wersing

Report written by: Markus Vincze

Contents [hide]

1 Goals
2 Scientific Challenges
3 Recommendations for Implementation
4 Reference

Goals [edit]

The attempt was to discuss where there are areas of imminent need for work or what might be limits to really advance the field. It was a rather free discussion. Given the mix of people subdisciplines such as vision and robotics have been stressed on purpose. The summary below first lists scientific challenges and second recommendations for implementation.

Scientific Challenges [edit]

- Need to understand: there is a lack of understanding the underlying concepts in many areas related to vision and their relation to behaviours, functions and tasks. However, such an understanding is necessary to explain the phenomena and replicate them in an artificial cognitive system.
- Semantic abstraction: while data can be hierarchically clustered, mined or other nice things done with it, there is still a gap from data to semantics and an abstraction in terms of semantic concepts that relate to data. This also includes a clear definition of semantics. And it applies not only to vision and robotics but all sensors or other parts of cognitive systems.
- Is engineering different? Building an artificial cognitive system might require also other sorts of "understanding", namely more specific to showing the replication of what has been understood. Nevertheless, there needs to be a more scientific approach to show this (See next)

Affect and Emotion in Cognition

Venue: Osaka, Japan

Date: 11-12 July 2008

Organized by: Robert Lowe, Anthony Morse, Tom Ziemke, University of Skövde, Sweden

Report written by: Tom Ziemke

Contents [hide]

1 Facts & figures
2 Scope of the workshop
3 Speakers
4 Further information

Facts & figures [edit]

The workshop on ***"The role of emotion in adaptive behavior and cognitive robotics"*** was held July 11-12 in Osaka, Japan, in connection with the SAB 2008 conference [1]. Approximately 25 researchers participated, including three invited speakers (Lola Canamero, Ron Chrisley, Marc Lewis) and six (other) euCognition members (Bartneck, Inderbitzin, Manella, Murray, Raif, Rank) whose participation was supported by euCognition.

Scope of the workshop [edit]

Affect and emotion have recently become a hot topic in the study of adaptive behaviour and embodied cognition in both natural and artificial systems. However, the regulatory role of affect/emotion, the relevant underlying mechanisms, and the interaction between affective/emotional and cognitive processes are still not well understood. In order to develop a better understanding of the role of affect/emotion in adaptive behaviour and cognitive robotics this workshop brought together approximately researchers working on affective mechanisms, emotional agents, as well as social interaction & human robot interaction

Cognition and Culture: the enactive approach

Venue: Watershed Media Centre, Bristol, UK

Date: June 2009

Organized by: Fred Cummins and Bill Sharpe

The workshop was scheduled to run in December 2008, but due to the financial situation in euCognition the budget became too constrained for us to be able to commit to the costs in time to secure the participation of some of the key international participants. We have therefore postponed the workshop until June 2009 and will submit a proposal to euCogII. Below is the call that we sent out. We secured commitments to attend from our target of about 25 people from a wide range of backgrounds including cognitive systems, anthropology, media and arts.

A workshop web site has been set up where people can register their interest.

Cognition and Culture: an enactive view

[edit]

The enactive approach to understanding cognitive systems is relatively new. Within that approach, a set of concepts and a novel vocabulary are being collectively refined that allow new ways of understanding complex systems that arise, are maintained, and die within complex environments, and how meaning arises for agents within them. We believe these tools and this vocabulary may be of use to researchers in allied fields, including but not limited to arts, media and cultural studies, anthropology, economics, and sociology, and will promote mutual learning amongst them all. A central issue of interest that brings these disciplines together is the notion of 'value' and how this can be viewed as the dynamic structural relationships between identity and context. Further details of the research orientation are below.

This workshop is intended to start the dialogue, and it is hoped it will be the first of three annual meetings that will play a significant role in creating a new level of interdisciplinary research enquiry. Attendance will be limited to 25 people and we are looking to balance the interest from different disciplines and find people who will have a strong interest in continuing the research conversation after the meeting. The agenda of follow-up activities will be developed by all the attendees as a part of the workshop.

Organisers:

Fred Cummins, Univ College Dublin
Bill Sharpe

Where the Money Went

European Network for the Advancement of Artificial Cognitive Systems

euCognition Network Actions 2006

Accepted	Proposer	Budget	Claimed	WP
NA 002-1 Student Support for the Inaugural Meeting	Fred Cummins	8000	8000	1
NA 004-1 Student Visit to the SCAI Lab, University of Skövde	Tom Ziemke	5900	1663	1
NA 004-2 Student Visit to the SCAI Lab, University of Skövde	Tom Ziemke	6875		1
NA 062-1 Staff Visit to University of Rome 'La Sapienza'	Barbara Caputo	1000	0	1
NA 097-2 Student visit to the University of Genoa	Angelo Cangelosi	4300	4180	1
NA 108-1 Staff Visit to the University of Genoa	Cecilio Angulo	1500	1500	1
NA 133-1 Student Visit to the Max Planck Institute, Leipzig	Stefano Nolfi	2700	1301	1
NA 007-1 Application & research roadmap for artificial cognitive systems	Bill Sharpe	125390	9355	2
NA 010-1 Workshop on Information Theory, Neurobiology and Cognition	Juergen Jost	3000	3004	2
NA 017-1 Symposium on Grand Challenge: Architecture of Brain and Mind	Aaron Sloman	10610	8818	2
NA 026-1 Workshop on Abstraction and Context in Cognitive Systems	Walter Kropatsch	2500	0	2
NA 028-1 9th Int. Conference on the Simulation of Adaptive Behavior	Jean-Arcady Meyer	5000	6221	2
NA 044-1 Action Selection for Intelligent Systems	Joanna Bryson	1150	1240	2
NA 050-1 Workshop on Embodying Cognition	Antoni Gomila	2000	1997	2
NA 066-1 CD Proceedings of ABiALS 2006	Gianluca Baldassarre	700	632	2
NA 089-1 Workshop on Attention in Cognitive Systems – WAPCV 2007	Lucas Paletta	3200	0	2
NA 092-1 6th Czech-Slovak workshop on Cognition and Artificial Life	Jiri Wiedermann	3000	0	2
NA 097-1 External Symbol Grounding Workshop 2006 (ESG2006)	Angelo Cangelosi	4800	2724	2
NA 126-1 Workshop on Modelling Cognitive and Biological Autonomy	Alvaro Morena	4100	4097	2
NA 141-1 Symposium on Imitation in Animals and Artifacts	Manuel Lopes	4200	2581	2
NA 178-1 Int. Conference on Development and Learning (IEEE ICDL 2007)	Yiannis Dimiris	0	0	2
NA 011-1 5th European Neuro-IT and Neuroengineering School	Andreas Engel	10025	10025	3
NA 047-1 Summer School on Humanoid Robots	Giorgio Metta	2790	913	3
NA 068-1 Neurophysiology and Psychophysics material for CVOnline	Robert Fisher	4000	4000	3
NA 068-2 Optically scan five cognitive vision books for CVOnline	Robert Fisher	4000	4000	3
NA 105-1 Connect with AI: cognitive robot education outreach initiative	Sethu Vijayakumar	3120	3120	3
	Overall Total	**223860**	**79371**	
	Total outstanding		**6875**	

European Network for the Advancement of Artificial Cognitive Systems

euCognition Network Actions 2007

Accepted	Proposer	Budget	Claimed	WP	Official Event
NA 004-3 Student Visit to University of Skovde	Tom Ziemke	5250	5677	1	
NA 009-1 Staff Visit	Peter Ford Dominey	600	552	1	
NA 030-1 Student Visit to University of Tokyo	Giulio Sandini	4800	4800	1	
NA 044-3 Book and Webpage	Joanna Bryson	36000		1	
NA 062-2 Staff visit to IDIAP	Barbara Caputo	7280	0	1	
NA 083-1 Staff Visit	Carlos Herrera	1800		1	
NA 097-2 Student visit to the University of Genoa	Angelo Cangelosi	4300	4180	1	
NA 097-3 Student visit to the University of Plymouth	Angelo Cangelosi	5300	5175	1	
NA 097-4 Student visit to the University of Genoa	Angelo Cangelosi	3200	2884	1	
NA 119-1 Staff Visit to the University of York	Giovanni Pezzulo	4400	4386	1	
NA 149-1 Student Visit to University of Oxford	Pau Baiget	1800		1	
NA 225-1 Industry Forum	Erich Rome	18000	10308	1	
NA 012-1 ACM/IEEE Human-Robot Interaction Conference 2008	Matthias Scheutz	17000	0	2	
NA 023-1 Workshop on object categorization	Ales Leonardis	4000	4000	2	
NA 024-2 Scan Paths: Eye Movement Data Sets	Stavri Nikolov	3740		2	
NA 032-1 ICVS 07	Antonios Gasteratos	4350	2221	2	
NA 089-1 Workshop on Attention in Cognitive Systems – WAPCV 2007	Lucas Paletta	2800	0	2	
NA 098-1 Symposium on Language and Robots 2007	Tony Belpaeme	3100	5825	2	Y
NA 130-1 Workshop on Models of Thought	Brendan Wallace	2474	9209	2	Y
NA 161-1 The 7th Int. Conf. on Epigenetic Robotics	Christopher Prince	12000	6327	2	
NA 173-1 Naturalized Epistemology Workshop	Marcin Milkowski	2000	2345	2	
NA 177-1 Int. Conference on Affective Computing and Intelligent Interaction	Lola Canamero	6000	8559	2	
NA 179-1 Workshop on natural and artificial intelligence	Alex Kacelnik	9400	6056	2	
NA 193-1 Workshop on social learning in embodied agents	Davide Marocco	2600	2273	2	
NA 205-1 Workshop on Dynamical Approaches to Development	Rachel Wood	8652	2014	2	
NA 217-1 Workshop on Enactive Approaches to Social Cognition	Steve Torrance	3000	2895	2	Y
NA 044-4 Curriculum	Joanna Bryson	19000		3	
NA 068-4 Collection of educational materials for machine learning	Robert Fisher	5250	3200	3	
NA 094-1 Cognitive robotics: from laboratory to media	Catalin Buiu	2700	2235	3	
	Overall Total	**200796**	**95121**		
	Total outstanding		**62340**		

European Network for the Advancement of Artificial Cognitive Systems

euCognition Network Actions 2008

Accepted	Proposer	Budget	Claimed	WP	Official Event
NA004-4 Student Visit	Tom Ziemke	500	406	1	
NA018-1 Student Visit	Ricardo Sanz	4870	4495	1	
NA045-3 EU Cognitive Systems projects at NIST IPerMis Conference	Patrick Courtney	15000	9240	1	
NA047-2 Dissemination of results at the Automatica 2008 trade fair	Giorgio Metta	2500	649	1	
NA081-1 Student Visit	Jordi Gonzalez	1000	0	1	
NA083-2 Staff Visit	Carlos Herrera	1700		1	
NA097-5 Student Visit	Angelo Cangelosi	5000		1	
NA097-6 Staff Visit to the University of Plymouth	Angelo Cangelosi	2500		1	
NA120-1 Student Visit to SCAI Lab	Anthony Morse	5750	5563	1	
NA146-1 Staff Visit	Xabier Barandarian	6750		1	
NA243-1 Staff Visit	Francesco Orabona	850	840	1	
NA304-1 Staff Visit	Roman Borisyuk	6300		1	
NA004-5 Workshop on Emotion	Tom Ziemke	7500	3617	2	Y
NA011-2 9th International Multisensory Research Forum 2008	Andreas Engel	10000	9320	2	
NA057-1 Workshop on Dynamic Field Theory	Wolfram Erlhagen	3000	2424	2	Y
NA065-1 CogSys 2008	Tamim Asfour	30000	2532	2	
NA089-2 Workshop on Attention in Cognitive Systems – WAPCV 2007	Lucas Paletta	2000		2	
NA119-2 ABiALS 2008	Giovanni Pezzulo	5000	4027	2	Y
NA159-1 Pascal Workshop on Modelling Cognitive Behaviour	Nello Christianini	0	0	2	Y
NA198-1 Official Event: Int. School on Multimodal Signals	Anna Esposito	10000	1818	2	Y
NA219-1 Workshop on adaptive mechanisms of the perception-action cycle	Vassilis Cutsuridis	5400		2	Y
NA224-1 EpiGenetic Robotics 2008	Luc Berthouze	9000	5818	2	Y
NA297-1 Workshop on International Robot Learning	Danijel Skocaj	3300	2015	2	
NA047-3 Cognitive Robotics Summer School	Giorgio Metta	10250	5510	3	
NA073-1 NL Dynamics and Robotics Summer School	Paolo Arena	5000	853	3	Y
NA140-1 Barcelona cognition, brain and technology summer school	Paul Verschure	47,800		3	
NA220-1 Doctoral Consortium	Samia Nefti	4500	1332	3	Y
NA240-5 Summer Institute on Social Cognition	Stevan Harnad	11,200	7,723	3	
	Overall Total	**216670**	**68182**		
	Total outstanding		**72,050**		

European Network for the Advancement of Artificial Cognitive Systems

Known Pending Travel Claims

Fabio Bonsignorio	5th Six-monthly meeting	911
Sanja Fidler	Student prize	1400
Robert Lowe	NA224-1 EpiRob	434
Robert Lowe	3rd Six-monthly meeting	662
Robert Lowe	4th Six-monthly meeting	739
Robert Lowe	5th Six-monthly meeting	840
Christoph Bartneck	NA004-5 Workshop on Emotion, Osaka	1500
Lola Canamero	NA004-5 Workshop on Emotion, Osaka	1000
Ron Chrisley	NA004-5 Workshop on Emotion, Osaka	747
Marc Lewis	NA004-5 Workshop on Emotion, Osaka	1871
John Murray	NA004-5 Workshop on Emotion, Osaka	1033
Tom Ziemke	4th Six-monthly meeting	841
India Ziemke	4th Six-monthly meeting	631
Tom Ziemke	5th Six-monthly meeting	1196
Marek McGann	NA217-1 Enactive Approaches to Social Cognition	500
Rachel Wood	NA217-1 Enactive Approaches to Social Cognition	500
Rob Clowes	NA217-1 Enactive Approaches to Social Cognition	660
Rob Clowes	NA 098-1 Symposium on Language and Robots 2007	738
Rob Clowes	4th Six-monthly meeting	477
Xing Zhang	NA224-1 EpiRob	750
Lola Canamero	NA224-1 EpiRob	750
Matthew Egbert	NA224-1 EpiRob	750
Rachel Wood	NA224-1 EpiRob	750
Kristen Manac'h	NA224-1 EpiRob	750
Joel Parthemore	NA224-1 EpiRob	750
Christian Berg	NA073-1 NL Dynamics	1000
Philippe Gaussier	NA053-1 Workshop on Dynamic Field Theory	771
Raymond Cuijpers	NA053-1 Workshop on Dynamic Field Theory	831
Nicolas Rougier	NA053-1 Workshop on Dynamic Field Theory	823
Martin Giese	NA219-1 Adaptive Mechanisms of the Perception Action Cycle	900
Amir Hussain	5th Six-monthly meeting	808
Fred Cummins	Final review	500
Bill Sharpe	Final review	400
David Vernon	Final review travel and meeting costs	3000
Matthias Scheutz	Final review	1200
Barbara Caputo	Final review	1000
Joanna Bryson	Final review	1000
Tom Ziemke	Final review	1000
Markus Vinczew	Final review	1000
	Total	**35412**

Contractor Labour Costs

	2006	2007	2008	status
UCD	11640	-3227	8000	confirmed
TUW	7800	5198	5198	confirmed
HIS	0	13103	18000	confirmed
AS	13615	10358	12500	confirmed
CNRS	13223	8965	17000	est.
MPG	12600	12600	0	confirmed
UKE	11400	26481	0	confirmed
EDIN	1868	9339	6200	confirmed
IDIAP	0	1775	3600	confirmed
BRIS	0	138	4000	est.
FIAS	0	0	0	confirmed
ARMINES	0	0	35520	confirmed
BATH	0	0	10000	confirmed
Total	**72146**	**84730**	**120018**	

Summary	
Y1 Costs	327,734
Y2 Costs	390,549
Y3 Costs to date	444,240
Y3 Labour costs (est.)	196,018
Known pending claims (inc. overheads)	42,495
Outstanding NA Commitments (inc. overheads)	169,518
Total	**1,570,554**
Available Budget	**1,599,916**
Available Funds	**29,362**

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euCognition Analysis of Travel and Other Costs Period 1-3: 1/1/2006 to 30/11/2008				
Category	**Number of Transactions**	**Travel Costs**	**Other Costs**	**Total Costs**
Outreach Coordination	1	2142	0	2142
Outreach Actions	18	34407	4273	38680
Outlook Coordination	5	3410	100	3510
Outlook Actions	134	133984	31019	165003
Education Coordination	0	0	0	0
Education Actions	31	39201	9408	48609
Resources Coordination	2	0	764	764
Resources Actions	0	0	0	0
Network Coordination	28	46360	27709	74069
Six-Monthly Meetings	422	275690	85848	361538
Executive Committee Meetings	82	19819	1948	21767
Sub-Total	**673**	**555014**	**161069**	**716082**
Overheads		**111003**	**32214**	**143216**
Total		**666017**	**193283**	**859298**

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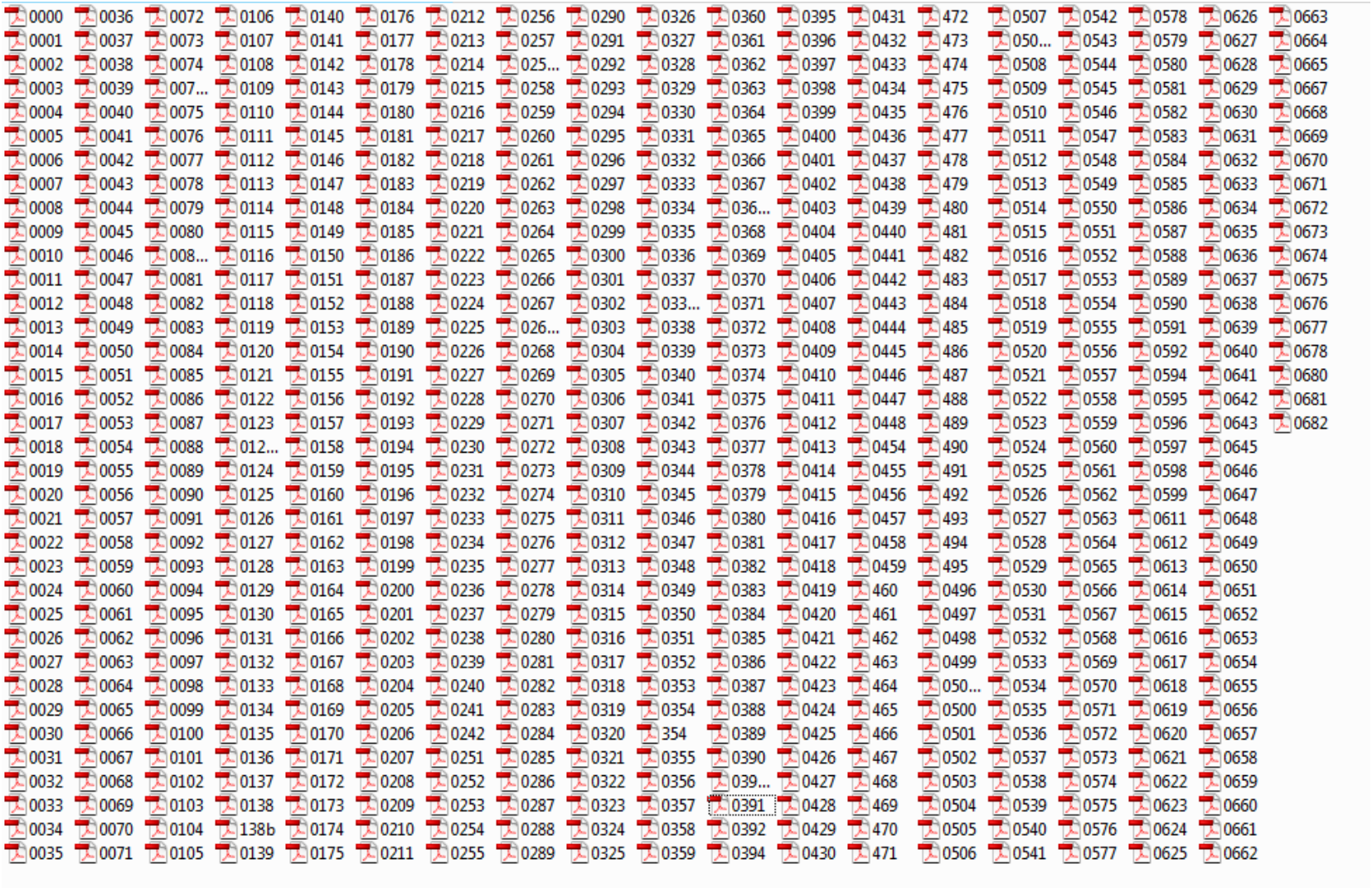

euCognition's Financial Crisis

euCognition's Financial Crisis

- Aug 2008: review of finances
  - Commitments > budget (1599916)
  - Claims > pre-financing
  - Limited budget
  - Cash flow

euCognition's Financial Crisis

- Budget
  - Y1: 21% of total spent
  - Y2: 45% of total spent
  - Y3: comfortable (so I thought)
  - But … in Year 3
    - Many legacy claims Y1 & Y2
    - Dramatic increase in official event participation

euCognition's Financial Crisis

- Cash-flow
  - Skewed expenditure (Y1 & Y2)
  - No pre-financing payment Y2
    - 70% rule: new pre-financing iff expenditure > 70% existing pre-financing
  - Cash-flow crisis
    - No money to reimburse members / guests claims
    - August 2008: 150 outstanding claims

euCognition's Financial Crisis

- Cash-flow Solution
  - Supplementary management report
  - Supplementary financial statement
  - Y2 pre-financing released
  - Cleared 150 claims
  - Pre-financing now depleted again
  - All new claims will have to wait

euCognition's Financial Crisis

- Budget Solution
  - Detailed analysis of historic, committed, projected costs
  - All planned activities cancelled
    - Final meeting
    - Network Action programme
    - Official Event programme
  - All members contacted to request reduction in costs
  - Several members of Exec. Committee agreed not to claim costs for effort

Looking Back

Looking Back

- Members don't read guidelines
- Members can't add
- Executive Committee too large
- Rotating responsibilities in the Executive Committee doesn't work
- Admin overhead is huge: networks scale badly
- Part-time web admin doesn't work
- Contractors don't familiarize themselves with contract minutiae
  - Annual reporting (financial, coordination, management)
  - Gets worse when finance people get involved … 1 point of contact
- Contract amendments are a real pain
- Management effort scales badly with number of contractors
  - Use sub-contracts for additional effort

Looking Back

- Light-weight reimbursement procedure works well
  - But need a "statute of limitations" for claims
- Six-monthly meetings are great for community-building
- Small network actions leverage disproportionate benefits
- Official euCognition Events great but need careful management
- The 'no research' rule doesn't really make a lot of sense
- Cognition briefings: good vehicle for member involvement but, again, need better editorial oversight

Remaining Work

Remaining Work

- 40-60 outstanding claims
- Pre-financing fully depleted … dependent on final payment for remaining reimbursements
- Periodic activity report
- Periodic management report
- Form C financial statements
- Critical to get these done ASAP

Looking Forward

Looking Forward

- Handover to EU Cog II
- Consolidation of
  - euCognition website & wiki
  - Bath website & wiki
- Continue to build the cognitive systems community
  - Coalescence needed
  - The Roadmap!!!
    "Thinking about thinking is difficult unless you are thinking about something"
- Did we achieve what we set out to? Yes and No …
- Was it worth it?
  - Ask the members …
  - And the reviewers …
  - And the Commission

Final Thought

"The real journey of discovery
consists not in seeking new landscapes,
but in having new eyes"

Marcel Proust (1871-1922).

2018
2018
Banksy

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