



FET through the keyhole

Future and Emerging Technologies in Europe
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Welcome to FET in FP7!

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FP7 - the new Framework Program for research of the European Commission – has brought with it many new elements, new research domains and expansion of activities in certain areas. In the transition to FP7, FET has been strengthened and reorganized into two units – FET-Proactive and FET-Open.

FET-Proactive aims to nurture the roots of innovation in Europe. It supports long-term and foundational research on Information and Communication Technologies (ICT) in areas that have the potential to become future engines of growth and competitiveness. In particular, it explores opportunities at the boundaries of multi-disciplinary domains (such as bio-nano-info-cogno) for new ICT paradigms and disruptive breakthroughs in technology. FET-Proactive will manage the existing and new proactive initiatives of FET.

FET-Open aims to stimulate the emergence of novel promising visionary ideas targeting scientific and technological breakthroughs and relevant for future ICTs ('exploratory role'). It aims to identify new research fields and to help related new research communities to emerge and develop up to the stage where they can possibly be supported by a FET-Proactive initiative ('catalytic role') or by the mainstream ICT research. A unique aspect of the FET-Open scheme is its light and continuous nature - proposers can submit short proposal ideas (5 pages) at anytime and they are evaluated as they come in.

Together the two units will continue and extend the good work built up over the past 12 years of FET. We look forward to exploring **with you** the promising and sometimes non-conventional routes to solving the ICT challenges of tomorrow.

Transitions

In keeping with its pathfinder role in the European ICT research programme, initiatives nurtured in FET were transferred to other areas of the ICT Programme at the start of FP7, as follows:

- Situated and Autonomic Communications (formerly a FET-proactive initiative) has become a central theme of the new Objective 1.6 "New Infrastructure Paradigms and Experimental Facilities", which is part of ICT Call 2 (total budget 40 M€).
<http://cordis.europa.eu/fp7/ict/fire>
- In FP7, the Robotics activities (including follow-up of the Robotics Platform EUROP and Network EURON) are managed under ICT Challenge 2, Cognitive systems, interaction, robotics (total budget 96 M€).
<http://www.robotics-platform.eu.com/index.htm>
http://cordis.europa.eu/fp7/ict/programme/challenge2_en.html
- FET was represented at the INC2 Conference on Emerging Nanoelectronics in May 2006 in Arlington and at the joint US-JN-EU committee (IPWGN). In FP7, responsibility for this activity was transferred to the ENIAC joint technology initiative.
<http://www.eniac.eu/>

Evaluation update

FET-Proactive Call 1: The call closed on 8 May, 2007, and evaluations took place in June 2007. Negotiations of successful proposals will be conducted in September and October 2007 with first contracts expected by the end of December 2007.

FET Proactive call schedule for FP7

	Call 1	Call 3	Call 4, draft
Nano-scale ICT devices & systems	◆		
Pervasive adaptation	◆		
Bio-ICT synergies	◆		
Science of complex systems		◆	
Embodied intelligence		◆	
ICT forever yours		◆	
Massive ICT systems			◆
Human-computer confluence			◆
QIPC			◆

FET-Open Scheme: The call opened on 19 March 2007. In the period to 3 May 2007, some 100 short STREP proposals were received. The first batch deadline for Coordination Actions (CAs) and successful short STREP proposals is 4 September 2007. The evaluation status is updated regularly on the FET-Open web site.

http://cordis.europa.eu/fp7/ict/fet-open/eval-status_en.html

International co-operation

FIRST INTERLINK WORKSHOP

EZE, FRANCE, 9-12 MAY 2007

The InterLink Coordination Action aims to advance Europe's knowledge in a number of critical scientific and technological areas, promote European solutions and knowledge world-wide and influence the way research in these areas evolves internationally. This workshop initiated focused work in three thematic areas - software intensive systems and new computing paradigms, ambient computing and communication environments, and intelligent and cognitive systems. The work is expected to provide substantial input on the global state of the art, to formulate new long-term research challenges and to take stock of ongoing international cooperation in each field. The workshop attracted around 60 participants from Europe, the US and Japan.

<http://interlink.ics.forth.gr/>

NATIONAL SCIENCE FOUNDATION (NSF)

An EU-US workshop was held in Sardinia (IT) on 13-15 April 2007 to discuss future research collaboration in neuromorphic engineering and the continuation of the Telluride workshops funded by the NSF since 1994. These 3-week 'hands-on' workshops - held annually in Telluride, Colorado - have been the main vehicle for promoting new ideas, testing technologies, developing common standards, and training young researchers in this area. NSF will continue to fund these workshops until 2012.

AUSTRALIA AND SINGAPORE

FET was present at the Forum for European-Australian Science & Technology Cooperation (FEAST 2006), and took part in a number of exploratory meetings with representatives of funding agencies and selected research communities in Australia and Singapore. The Australia-EU S&T agreement exists since 1999. Singapore is considering the possibility of synchronizing its research policy with that of the EU, following the "Swiss" model (in

which a participant in a successful FP7 proposal is automatically funded by its local funding agency).

QUANTUM INFORMATION PROCESSING AND COMMUNICATION (QIPC)

A representative of FET joined a delegation of six leading European QIPC scientists visiting the US-Japan Workshop on Quantum Information Science. The event served to exchange opinions and foster cooperation between government agencies and researchers in the field, to compare regional research activities and funding schemes in the US, Japan and Europe, and to establish useful contacts with US funding agencies with a view to implementing concerted actions (Hawaii, 16-20 October 2006).

http://www.qis.ex.nii.ac.jp/hawaii2006_prgm.html

FET effects

INSPIRATIONS FOR FET-OPEN RESEARCH

We are happy to share with you the results of an internal FET-Open brainstorm on possible inspirations for future research. We asked ourselves how FET-Open can offer new perspectives on information science, information technology and information society, and came up with a number of initial ideas:

- Exploring the confluence of sciences into new emergent disciplines.
- Exploring the frontiers of scientific knowledge and the ICT-related implications of recent scientific findings.
- Exploring political, societal, economical and environmental challenges as drivers to information science and technology exploration.
- Information society and information technology reflecting on itself, its impact, its boundaries...

We would like to explore these ideas with you and have set up an interactive web resource for this purpose, **so please let us know your views!**

http://cordis.europa.eu/fp7/ict/fet-open/forum_en.html

FET-OPEN ACTIVITY REPORT PUBLISHED

The FET-Open Activity Report for FP6 (2003-2006) is now available. This report gives a quantitative analysis of FET-Open in FP6, and traces its evolution over time by comparing it to FP4 and FP5.

http://cordis.europa.eu/fp7/ict/fet-open/library_en.html

QIPC AWARDS

QIPC community members were recent recipients of a number of prestigious awards:

- The 2006 "International Quantum Communications Award" was announced on 28 November 2006 at the International Conference on Quantum Communication, Measurement and Computing (QCMC) in Japan. The prize for theoretical research went to **Ignacio Cirac** (Max-Planck-Institut für Quantenoptik, Garching, Germany) and **Peter Zoller** (University of Innsbruck, Austria); the prize for experimental research went to **Philippe Grangier** (Institut d'Optique, Paris, France).

<http://www.qcmc2006.org/awards.html>

- **Nicolas Cerf** (Université Libre de Bruxelles) won the Marie Curie Excellence Award, 16 Nov. 2006. http://cordis.europa.eu/fetch?CALLER=EN_NEWS&ACTION=D&SESSION=&RCN=26670
- **Rainer Blatt** (University of Innsbruck) won the Schrodinger Prize of the Austrian Academy of Sciences, 13 October 2006. <http://www.oew.ac.at/stipref/forscherpreise/>
- **Peter Zoller** won the Dirac Medal of the International Centre for Theoretical Physics (ICTP), 8 August, 2006, Trieste, Italy. <http://physicsweb.org/articles/news/10/8/6/1/>
- **Eugene Polzik** (coordinator of QUROPE) was granted Membership of the Royal Danish Academy of Science, April 2006, Denmark. www.royalacademy.dk

WORKSHOP ON CONVERGENCE OF BUSINESS AND SOCIAL NETWORKS, BRUSSELS, 3-4 MAY 2007

The workshop explored the growing impact of social and business networks on the future of services ecosystems. Industry practitioners, PhD program directors from business schools and researchers in the emerging fields of social computing and science of services discussed emerging business, research and educational challenges in business services, business and social networks, supply-value chains, strategy and change, and business transformation. One focus was on the development of PhD curricula to meet new educational needs resulting from the shift from traditional IT and business structures to networked businesses and social networks. A white paper is under preparation.

http://cordis.europa.eu/fp7/ict/fet-open/events-p_en.html

S2S2 WORKSHOP AND CONCERT TO LAUNCH THE ROADMAP FOR SOUND AND MUSIC COMPUTING, BRUSSELS, 16 APRIL 2007

The S2S2 Coordination Action presented its roadmap to help sound and music computing (SMC) reach its full potential and provide the core technologies for the ongoing revolution in the electronic music industry. The roadmap draws inspiration from physics, engineering, psychology, musicology and the creative arts, and identifies five key challenges to maximising European added value in this field.

Participants to the workshop were treated to a concert using a completely novel musical instrument – the Universitat Pompeu Fabra's 'ReacTable' – which effectively applies new SMC technologies. The Reactable is also featured in the latest world tour by Icelandic singer Bjork.

<http://www.s2s2.org/>
http://mtg.upf.edu/reactable/pdfs/reactable_bjork.pdf

NEW BOOK ON PRESENCE

A new book on the results of Presence was published by IOS Press at the end of 2006. The book traces the relationship between communication and presence, and discusses inner vs media presence, emotion, cognition and culture, communication, and presence in practice in leisure, therapy and learning.

"From Communication to Presence: Cognition, Emotions and Culture. Towards the Ultimate Communicative Experience", Volume 9 "Emerging Communication: Studies in New Technologies and Practices in Communication." Editors: G. Riva, M.T. Anguera, B.K. Wiederhold and F. Mantovani. 320 pages, ISBN-10: 1586036629.

Projects in the news

EMCAP: BABYLAB IN BUDAPEST

Studies into overt behavioural responses to sounds in young infants show that some basic auditory processes underlying music perception in 6-month old babies are similar to those in adults. However, applying behavioural methods in new-born infants is very difficult.

Measurement of sound-evoked electrical brain activity is invaluable. At the 'BabyLab' in Budapest, EmCAP is completing a first study to measure electrical brain responses in 10 newborn babies. Early results suggest that newborn babies detect repeating pitch patterns similarly to adults.

<http://emcap.iaa.upf.es/showcase.html>

LEURRE

"Researchers recently succeeded in controlling cockroaches with tiny mobile robots" (extract from an ICT results article on LEURRE, 8 May 2006).

<http://istresults.cordis.europa.eu/index.cfm/section/news/tpl/article/BrowsingType/Features/ID/81744/highlights/LEURRE>

Perhaps uniquely for a single EC research project, LEURRE was also the subject of a popular science film aired on the ARTE channel in June 2006, and screened at the Pariscience Film festival. An English language version of the film is in preparation.

<http://leurre.ulb.ac.be/index2.html>

S2S2

"Forget notions that sound and music computing is just nerds tweaking knobs in soundproof rooms. This fast-moving, multi-billion euro branch of the 'creative sciences' looks set to be a major source of growth in Europe." (extract from ICT results article on S2S2, 30 May 2007).

<http://istresults.cordis.europa.eu/index.cfm/section/news/tpl/article/BrowsingType/Features/ID/89044>

ACCA

"Networks could self-organise sooner than we think" (title of an ICT results article on ACCA, a Coordination Action on Autonomic Communication, 21 November 2006).

<http://istresults.cordis.europa.eu/index.cfm/section/news/tpl/article/BrowsingType/Features/ID/88935/highlights/ACCA>

MOBILEMAN

If people are carrying suitable devices, [...] an ad hoc wireless network can be created anywhere within minutes.... (extract from an ICT results article featuring the MOBILEMAN project, 17 November 2006).

<http://istresults.cordis.europa.eu/index.cfm/section/news/tpl/article/BrowsingType/Features/ID/88918/highlights/Mobileman>

MAIA

'The device combines the intelligence of human beings with the intelligence of the wheel chair,' José del R. Millán, Coordinator of the MAIA project, talked to CORDIS News. MAIA has shown how a brain-computer interface recognizes the subject's high-level intent to move and conveys this intention to a robot that implements the necessary low-level details for achieving the complex movement tasks. The project was also featured recently on Euronews Futuris.

<http://www.maia-project.org/>

http://cordis.europa.eu/fetch?CALLER=EN_NEWS&ACTION=D&SESSION=&RCN=27554

ECAGENTS

"We saw colonies that used their lights to signal when they found food and others that used signals to communicate they had found poison." Laurent Keller, a biologist of the University of Lausanne (CH) described in New Scientist Tech a number of experiments carried out in the ECAGENTS project which allowed simulated bots to explore their surroundings. The genomes of the bots that found food and avoided poison most efficiently were recombined, mimicking biological natural selection.

<http://ecagents.istc.cnr.it/>

<http://www.newscientisttech.com/article/dn11248-robot-swarms-evolve-effective-communication.html>

I-SWARM

The University of Karlsruhe, Coordinator of I-SWARM, participated in a number of popular TV programmes in Germany and Austria. I-SWARM aims to facilitate the mass-production of microrobots which can be employed as a "real" swarm, consisting of up to 1,000 robot clients, equipped with limited, pre-rational on-board intelligence and different sensors, manipulators and computational power. Such a robot swarm is expected to perform a variety of applications, including micro assembly, biological, medical or cleaning tasks.

Quarks and Co - Das Geheimnis des Schwarms www.quarks.de (10 April 2007), Nano - David Roboter wie Bienen www.3sat.de and Newton - <http://tv.orf.at/newton> (November 2006).

SWARMANOID

"I used to think ants knew what they were doing... ...[.] turns out I was wrong". SWARMANOID was featured in the July 2007 edition of National Geographic Magazine <http://www7.nationalgeographic.com/ngm/0707/features/>

CORDIS FOCUS

Fifteen FET projects were featured in the January 2007 issue of Cordis Focus Magazine.

ftp://ftp.cordis.europa.eu/pub/focus/docs/res60_en.pdf

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Forthcoming events

INTERNATIONAL WORKSHOP ON FUTURE INFORMATION PROCESSING TECHNOLOGIES

4-7 September 2007 - Dresden (DE)

<http://www.iwfip.gwtonline.de/>

ECCS'07: EUROPEAN CONFERENCE ON COMPLEX SYSTEMS

1-5 October 2007 - Dresden (DE)

<http://www.trafficforum.org/dresden>

QIPC 2007: INTERNATIONAL CONFERENCE ON QIPC

15-19 October 2007 - Barcelona (ES)

<http://icfo.pulso.com>

CLUSTER REVIEW FOR SIMULATION OF EMERGENT PROPERTIES IN COMPLEX SYSTEMS

24-26 October 2007

25 October: Workshop on Complex Systems Initiative

<http://cordis.europa.eu/ist/fet/co.htm>

PRESENCE 2007

10th Annual International Workshop on Presence

25-27 October 2007 - Barcelona (ES)

<http://www.peachbit.org/>

GLOBAL COMPUTING CLUSTER REVIEW

5-6 November 2007 - Sophia Antipolis (FR)

Trusted Global Computing conference

7- 9 November 2007: review of projects

<http://cordis.europa.eu/ist/fet/gc.htm>

CLUSTER REVIEW MEETING FOR EMERGING NANO-ELECTRONICS

13-16 November 2007 - Canary Islands (ES)

<http://www.phantomsnet.net/Picoinside/EUFET/index.php>

About this newsletter

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