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**EURON**

*European Robotics Network*

Network of Excellence  
Information Society Technologies

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**Minutes of 1st Intl Coop Meeting**

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**Minutes of the International meeting on international cooperation  
May 18, ICRA 2006, Orlando Florida**

**Attendees** : George Bekey, Alicia Casals, Raja Chatila, Rüdiger Dillmann, Georges Giralt, Bill Hamel, Hirochika Inoue, George Lee, Sukhan Lee, Bruno Siciliano.

**Objectives**: Organized by EURON, the purpose of the meeting is to share information on the issues related to research roadmaps, robotics curricula, educational activities (e.g., summer schools), industry links, etc. and to try to identify ways to exchange information and harmonize activities at the international level whenever possible.

**Initial schedule:**

**8:00-8:05** Introduction: objectives of the meeting, R. Chatila

**8:05-8:15** The Euron network, R. Chatila

**8:15-9:30** Research roadmaps.

EURON roadmapping activities, R. Dillmann.

Situation in Korea (S. Lee), Japan (H. Inoue), the US (G. Lee), the WTEC assessment on robotics (G. Bekey), IARP views (B. Hamel, G. Giralt), RAS views (B. Siciliano).

**9:30 -10:15**. Curricula and education:

EURON efforts on education and curricula, A. Casals

EURON efforts on summer schools, R. Chatila

Presentation of similar activities by participants, and discussion.

**10:15-10:35** Dissemination/Publications/Conferences

**10:35** -Links with industry; Situation in Europe (R. Chatila)

**10:55** Future actions

**11:00** End

Discussions were very rich and open. They focused mostly on the networking issues, on roadmapping and on the education activities. Shorter time has remained for the other issues.

The operation and mechanisms of EURON drew great interest from non-european participants. Euron provides for a global view of robotics activities and research in Europe, and a unified roadmapping activity. There are no such possibilities elsewhere in the world.

G. Bekey informed that plans for network with similar goals, AMRON, to start in the US but to extend to Canada and Mexico, are being drawn. It should be discussed during a planning workshop in September. A multiagency funding scheme will be sought.

There are no similar networking initiatives in Korea and Japan, although there are professional societies in these countries.

R. Dillmann presented the Euron roadmap.

In the United States, there are several funding agencies with different agendas and funding schemes. The focus in 2007 for NSF will be the next generation internet. In 2008, health care robots and human robot interaction could be a priority because of the aging society concern.

Roadmapping is basically pursued by MITI in Japan, but this roadmaps is not publicized. The aging society is a central theme there, for industry and for the general population. Bio and nano have been quite influential, but Robotics is recognized for the future. Japan will announce next month ten areas for innovation and research in which projects will be sought. A special council at the prime minister office is in charge of identifying those areas. MITI wants also projects producing actual applications in the next 3-5 years.

A specific department in the Ministry of Industry, Commerce and Energy in Korea oversees robotics activities. There is also a special committee at the President office that can take decisions to allocate funding budgets. Robotics is viewed to be integrated in Information technologies, and telecom companies are interested because of new services. There is also a wide market, for example in domestic cleaning, that can be targeted.

Urban transportation could be a new major topic for future applications.

The situation in China is unknown. There is some networking in Australia where “centers of excellence” have been identified and funded accordingly.

A. Casals presented the EURON activities on curricula and education and the process of collecting descriptions of robotics courses in Europe (see <http://euron.upc.es/rcdb/>). Besides the information on courses for students and teacher, this contributes to identify what could be a common robotics curriculum in Europe. The site is however open to contributions from universities outside Europe.

In the US, ACM has a curriculum for computer science, but there is nothing similar for Robotics. In addition, Robotics is scattered between CS, ME and EE university departments, with different foci. The interest of a robotics degree at the Bachelor level is unclear. There is an undergraduate validation board and robotics as such might not be a significant domain at that level, with respect to systems engineering in general.

In Japan, there has been a major evolution to include computer science with the more classical mechanical engineering curricula, to create the concept of mechatronics. This resulted for example in creating the department of Mechano-informatics at the University of Tokyo.

The recent trends in university department growth in universities are similar in the US and Japan: Mechanical engineering is growing, while computer science and electrical engineering are decreasing. In Korea the trend is opposite. The situation is

unknown in Europe. It's unclear what conclusions can be drawn from these observations.

R. Chatila presented briefly the summer schools funded by EURON. The question of student support and degree credit was discussed.

The EUROP Technology platform, as well as activities towards industry within EURON - such as the transfer award - were presented briefly as well. There is the industry activity board within IEEE RAS chaired by S. Lee, and some coordination with EURON could be implemented.

### **Conclusions**

The meeting was considered by the participants to be very useful. Several channels for international exchange and coordination across the networks and across continents (when AMRON will be organized) were considered and discussed. Neither the IARP nor IEEE were considered to be the adequate structures for this exchange. A new VP in RAS might be nominated for international networking. However, a specific process should be identified for interaction and exchange among the networks. This process could include common meetings and workshops and sending observers to other's meetings, Special issues of journals could be considered to publicize the outcomes of those workshops.

### **Future Actions**

- Exchange of information on the AMRON initiative.
- Continue exchange of information on roadmapping
- Possibility to extend the curricula to universities outside Europe.
- A follow-up meeting shall be organized in the Fall. IROS (Beijing, October) could be an adequate venue to take advantage of the presence of people, but a specific meeting could be called in Europe as well.