

# AIST/CNRS Joint Japanese–French Robotics Laboratory

## J R L

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A success collaboration story between France, Europe and Japan

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Codirector of JRL

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# Organisation

Dr. Guillon  
 Director of Information and  
 Engineering Sciences Department  
 (ST2I)



JRL



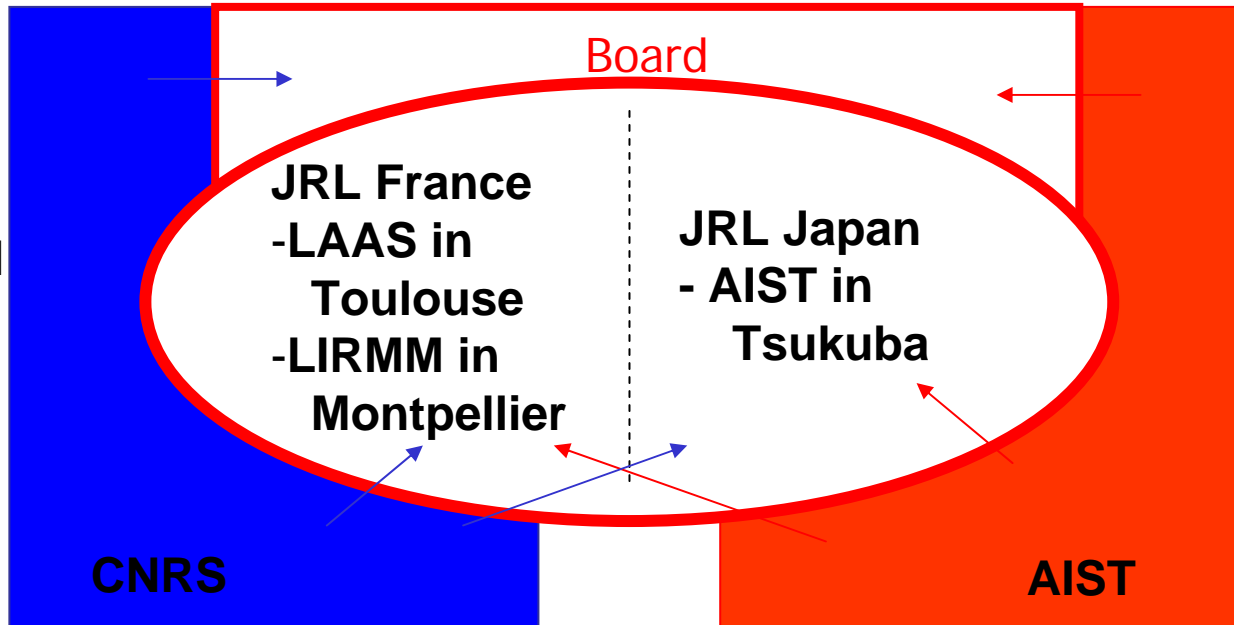
Dr. Hirai  
 Director of Intelligent Systems  
 Research Institute (IS)



Dr. Laumond



Dr. Yoshida



Dr. Yokoi



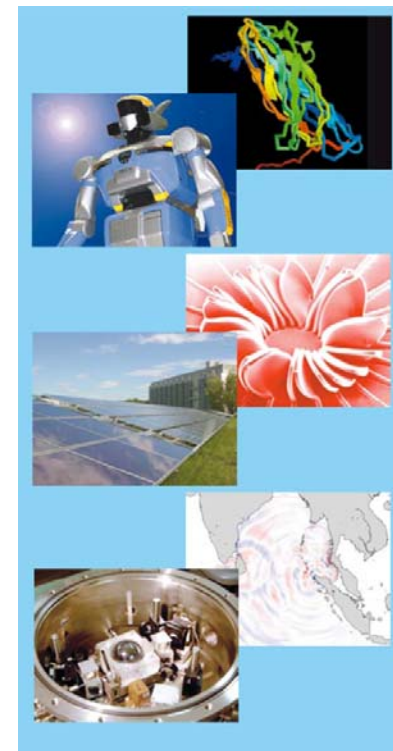
Dr. Kheddar



# AIST

[www.aist.go.jp](http://www.aist.go.jp)

- National Institute of Advanced Industrial Science and Technology (AIST), led by President Dr. Yoshikawa, is funded by the Japanese government
- AIST has over 50 autonomous research units in various innovative research fields
- About 2500 research scientists (about 2000 with tenure) and well over 3000 visiting scientists, post doctoral fellows and students are working in AIST
- Missions of AIST are
  - Contribution to a sustainable society,
  - Contribution to industrial competitiveness,
  - Contribution to local industrial development, and
  - Contribution to industrial technology policies.



# CNRS

[www.cnrs.fr](http://www.cnrs.fr)

- CNRS is a major European Scientific Organization
- It is under the ministry of research
- Its employees are civil servants
- Laboratories
  - 136 in-house laboratories
  - 790 laboratories associated mainly with universities, other French Institutions (INSERM, INRA, INRIA, CEA) and companies
- CNRS funds scientific programs
  - **Covers all the scientific fields from mathematics to humanities**

# Historical background

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- 2001-11-22
  - AIST concluded General Agreement with CNRS (Dr Berger and Dr Yoshikawa)
- 2003-12-08
  - IS/AIST-STIC/CNRS Joint Japanese-French Robotics Laboratory (JRL) was established
- 2005-11-14
  - JRL Agreement was renewed
  - New placement at CNRS-LAAS Toulouse
- 2007-04-16 (up-coming)
  - First scientific review meeting: Toulouse

# AIST–CNRS renewed General Agreement

- Nov. 6, 2006



Presidents

Dr. Yoshikawa and Dr. Bréchnignac



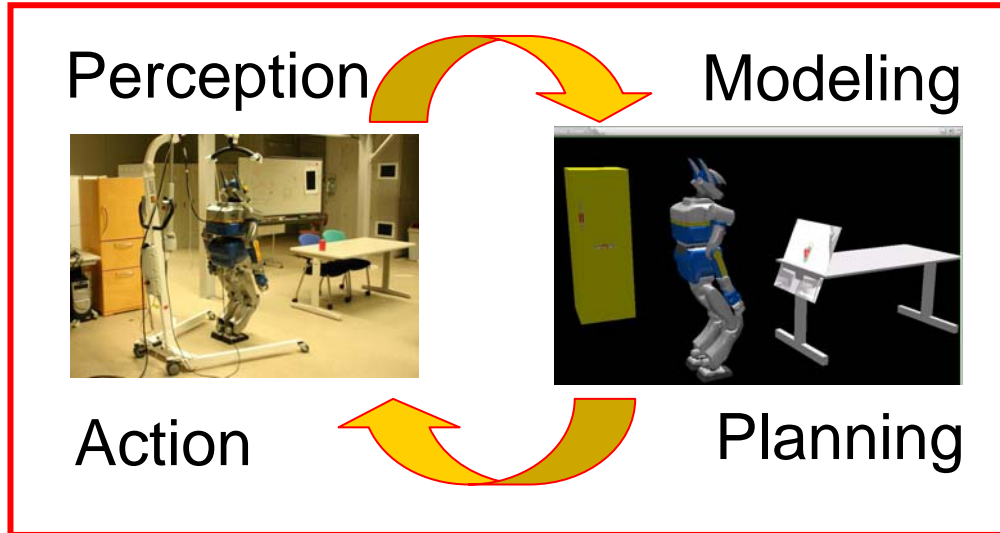
JRL-Japan presented its activities.

# Research policy

- Increasing humanoids' autonomy by
  - Creation and selection of behaviors
  - Multi-modal interactivity
  - Advanced ICT integration



HRP-2



Make real-time the loop between real perception and model-based actions

# Multi-disciplinary approach

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- **Human science**
  - Cognitive/psychophysics models/validation
  - Prosthesis design, power-assist design, etc.
- **Virtualized environments**
  - Digital human, virtual manikins for prototyping, biomechanics
- **Human-machine interface**
  - Remote multi-modal control of complex systems
  - Interactivity with humans
- **Collaborative working environments**
  - Robotic integration within future working environments clusters, grid computing
- **Embedded systems**
  - Mechatronic integration

# Personnel: JRL–Japan (Feb. 2008)

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- 2 Codirectors
  - K. Yokoi (AIST), A. Kheddar (CNRS)
- 8 Tenure Researchers
  - N. Kita, T. Sakaguchi, H. Arisumi, E.S. Neo, K. Kaneko (Adj.) (AIST)
  - F. Lamiraux, O. Stasse (CNRS), P-B. Wieber (Marie-Curie Fellow)
- 5 PosDocs
  - R. Tadakuma (JSPS)
  - S. Miossec (CNRS), N. Mansard (JSPS), A. David (JSPS)
- 7 Alumni (post-doc)
  - S. Krut, Ph. Lucidarme, S. Sakka, F. Saidi, S. Mohammed, B. Verrelst (BE), Y. Gun (CN)
- 6 PhD Candidate
  - H. Na
  - A. Escande, J.R. Chardonnet, P. Evrard, T. Foissotte, F. Keith
- 10 MS students (2008)
  - H. Sanada, T. Ujiie, S. Tsuno, T. Nakamura, H. Tsukagoshi
  - M. Battaglia, M. Bénallègue, K. Bouyarmane, S. Garsault, L. Magnan
- 1 Assistant
  - T. Uga

# Projects (JFY 2005 – 2007)

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- 1 EU Project
  - A new proposal will be submitted for FP-7
- 13 Japanese Projects
  - 1 METI Project
  - 2 NEDO Project
  - 1 JST Project
  - 9 JSPS Projects
- 2 AIST Projects

METI: Ministry of Economy, Trade and Industry

NEDO: New Energy and Industrial Technology Development Organization

JST: Japan Science and Technology Agency

JSPS: Japan Society for the Promotion of Science

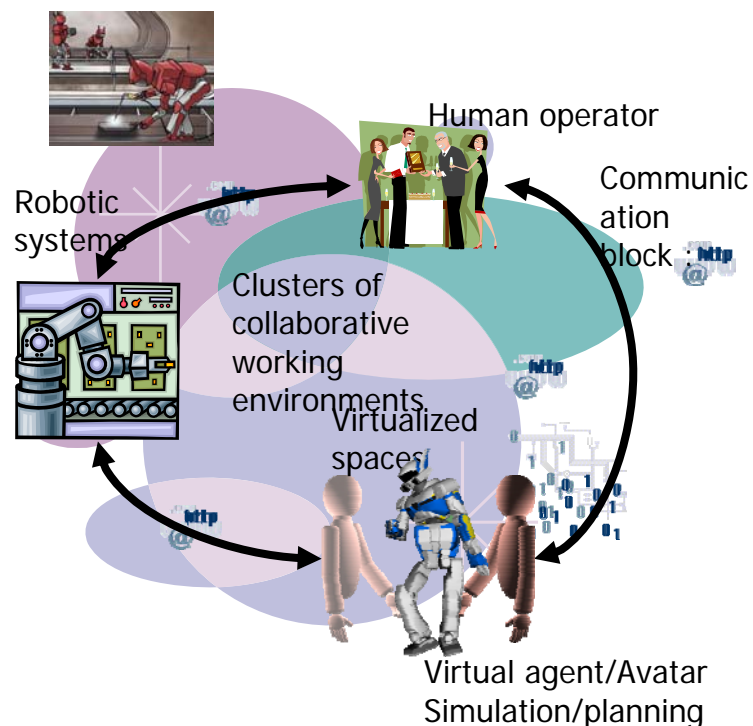
# Japan Projects: NEDO

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- NEC, **JRL–Japan**, MHI, Yaskawa, and TIT, “Development of Speech Recognition Module and its Application,” **NEDO Project**, 2005-2007
- **JRL–Japan** “Humanoid Robot HRP-2 No.10 with Human Supervision,” **NEDO Project**, 2004-2005

# EU Project in FP6

- ROBOT@CWE (2006–2008)  
Advanced robotic systems in future collaborative working environment
  - Members:  
**CNRS** and **AIST (JRL-Japan)**, UC3M, TUM, UNISALZ, EPFL, DRAGADOS, HP EIC, SpaceApps
  - Coordinator: **A. Kheddar**
  - [www.robot-at-cwe.eu](http://www.robot-at-cwe.eu)



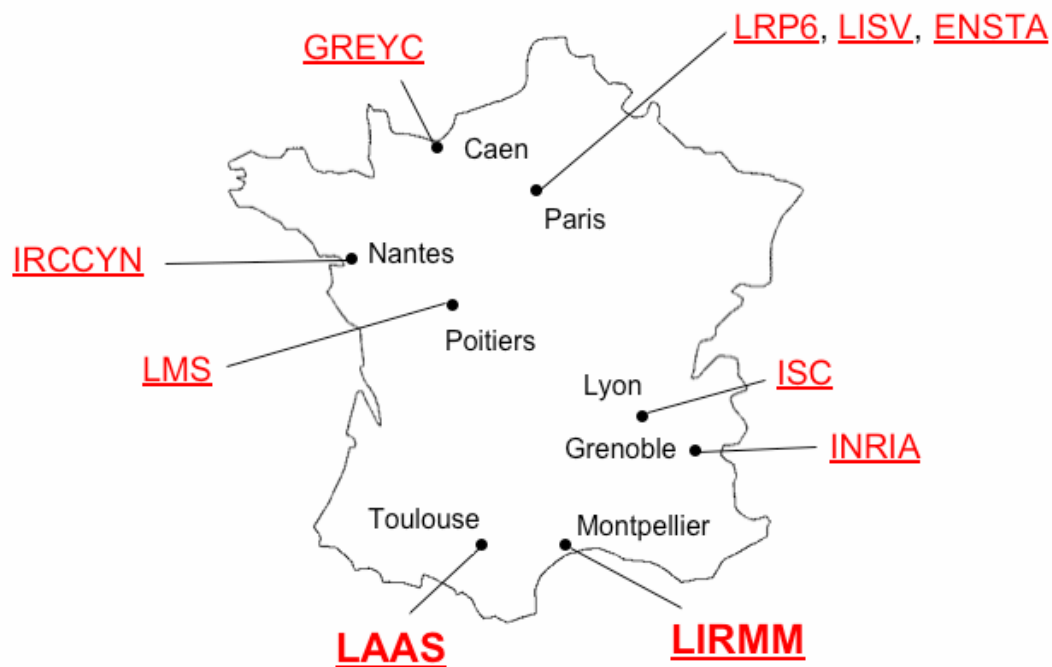
# VIP Visitors (Snapshots)

- February 2005  
F. Loos ministry of industry and his Exc.  
formal French Ambassador
  
- August 2006  
Her Royal Highness  
Princess Sirindhorn  
of the Kingdom of Thailand
  
- November 2006  
Senior Vice Minister Mr. Watanabe  
of Economy, Trade and Industry
  
- 5 April 2007  
EU Commissioner Ms. V. Reding  
of DG Information Society and Media,  
European Commission



# JRL–France

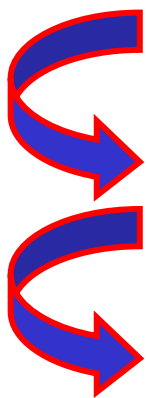
- JRL–France (LAAS, LIRMM), INRIA, LMS, IRCCyN, GREYC, LRP6, LISV, ENSTA, ISC
- National projects basis      JRL Projects: 15 Projects from 10 Laboratories



# Snapshot of research roadmap

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- Toward dealing with breakthrough problems in robotics
- Tentative roadmap
  - Industry or laboratory environments
    - very structured and known environments
  - Indoor home and office services (**but also flexible industries**)
    - Unstructured but known environments
  - Outdoor environments
    - Unstructured and partially known environments



# Conclusion

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## ■ Future plans

- Increase strength between CNRS and AIST through an AIST CNRS mixed unit
- Open toward a European dimension
- Use FP7 tools to increase joint projects

## ■ Lessons learned

- Collaboration is first a matter of human exchange
- Administrative tools need to be flexible to allow a bottom-up approach

# CNRS International policy

