



**Japanese - French Laboratory for Informatics
(JFLI)**

日仏情報学連携研究拠点

Philippe Codognet, *CNRS/UPMC/University of Tokyo* (French co-director)

History



- Talks started in 2004 between CNRS and Keio University for a joint lab on “Next Generation Networks”
- Several CNRS-JST collaboration projects on IT
 - call for proposals between 2006 and 2008
- JFLI created on 2009/01/01 for 4 years as LIA (Laboratoire International Associé)
- JFLI became joint international unit UMI 3527 (Unité Mixte Internationale) on 01/01/2012
- signature on October 18th in Paris during Today Forum and December 7th in Tokyo

Two-level collaboration structure



- 5 research topics
 - rather large areas, specific collaborations within
- Hub for bilateral collaboration JP-FR
 - “associate members”, “host professors”
 - distant collaboration : workshops, sort-term visits
- Small number of FR researchers in Tokyo
 - For long-term and deeper cooperation
- Maybe more like LIMMS or MICA than IPAL or JRL

French side ...



- In 01/01/2012 upgrade to status of “Unité Mixte Internationale” of CNRS UMI 3527
- Autonomous laboratory (administratively)
- current cooperation with researchers of several CNRS labs (“associate members”)
 - LIP6 (Paris), LIAFA (Paris), STMS (Paris), LIFL (Lille),
 - LRI (Paris), IRISA (Rennes), LaBRI (Bordeaux), LORIA (Nancy),
 - LSIIT (Strasbourg), IRIT (Toulouse),
- open to all CNRS labs
- budget for research expenses provided by CNRS and UPMC

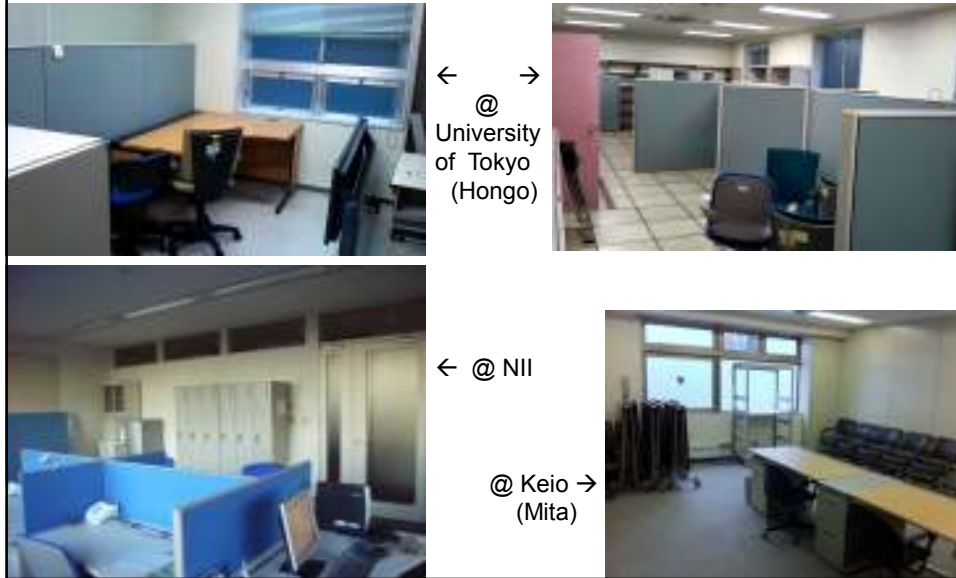
Japanese side ...



- University of Tokyo
- Keio University
- National Institute of Informatics
- JFLI offices in each institution (for researchers)
- Idea of “host professors” : people who are interested to collaborate with French teams
- budget for research expenses from 3 institutions
- Japanese co-director:
Shinichi Honiden (NII/U. Tokyo)



JFLI Offices in Tokyo



5 Research Topics based on existing F-J collaborations



- Next Generation Networks:
 - modelling and measurement of networks, mobile networks, ad hoc networks and ubiquitous computing, sensor networks
- Grid and High-Performance Computing:
 - programming paradigm and languages for next-generation supercomputers, algorithms for scientific computations, iterative methods and auto-tuning, cloud computing, runtime systems for heterogeneous machines, management of large data.
- Software, Programming Models & Formal Methods:
 - Software verification and validation, formal methods, information security, engineering of ambient intelligence, constraint programming
- Virtual Reality Multimedia:
 - virtual reality, interfaces and interaction, multimedia content analysis and retrieval, digital contents
- Quantum Computing
 - quantum cryptography and communication, quantum algorithms, feasibility of large scale quantum computation

Why those topics ?

- Based on existing F-J cooperation in IT (in particular JST-CNRS projects, 2006-2008) and scientific interest
- Cooperation cannot be built from scratch ...
- Adequate basic for creating a “critical mass” for Ph.D., post-docs and senior researchers
- Within each topic, precise collaboration themes might evolve in time.
- New topics can be added, old topics removed, depending on actual collaboration

French researchers in Tokyo



At University of Tokyo:

- **Philippe Codognot** (co-director, prof. UPMC / delegation CNRS)
 - combinatorial optimization, constraints, parallelism, multimedia
- **David Nowak** (CNRS researcher) April 12 – March 13
 - Formal methods, verification, proof assistants
- **Yves Caniou** (ass. Prof. Univ. Lyon / delegation CNRS) Sept 12 – Aug 13:
 - Grid Computing, High Performance Computing
- **Romain Fontugne** (JSPS post-doc) Nov 11 - Oct 13
 - Next Generation Networks, sensor networks
- **Alejandro Arbelaez** (JSPS post-doc) Nov 11 - Oct 13
 - Parallel SAT solvers
- **Jean-Francois Baffier** (MEXT doctoral student) Oct 11- March 15
 - Graph Algorithms

French researchers in Tokyo



At N.I.I.:

- **Ismael Daribo** (JSPS post-doc) Sept 11 – Aug 13
 - 3D video communication, Computer Vision
- **Sebastien Poullot** (JSPS post-doc) Apr 12 - March 14
 - Multimedia Video Indexing & Analysis
- **Diego Thomas** (NII post-doc) Apr 12 - March 13
 - Computer Vision, 3D modeling, Image Registration,
- **Johan Mazel** (JSPS post-doc) Sept 12- Aug 14
 - Next Generation Networks, sensor networks

French researchers in Tokyo (past)



- Sept 10 - Aug 12: **Florian Richoux** (CNRS post-doc)
 - Complexity, CSPs, parallel solvers
- Oct 09 – Nov 11: **Thomas Silverston** (JSPS post-doc)
 - IPTV, peer-to-peer networks
- Sept 09 – Sept 11: **Yves Caniou** (ass. Prof. Univ. Lyon/CNRS LIP)
 - Grid Computing
- Sept 08 - Aug 10: **Bertrand Nouvel** (post-doc)
 - computer vision, Image analysis
- Dec 08- June 09 : **Marcelo Dias de Amorim** (CNRS)
 - Mobile networks

Japanese Host Professors



At University of Tokyo:

- Prof. **Masami Hagiya** (formal methods, molecular computing)
- Prof. **Hiroshi Esaki** (next generation networks)
- Prof. **Michitaka Hirose** (virtual reality)
- Prof. **Hiroshi Imai** (algorithms & complexity)
- Prof. **Yutaka Ishikawa** (HPC)
- associate Prof. **Francois Le Gal** (quantum computing)
- associate Prof. **Mary Inaba** (parallelism, SAT solvers)

Japanese Host Professors



At N.I.I.:

- Prof. **Shinichi Honiden** (software engineering, agents)
- Prof. **Shin'ichi Satoh** (video indexing)
- Prof. **Kae Nemoto** (quantum computing)
- Prof. **Katsumi Inoue** (logic & reasoning, bio-informatics)
- Prof. **Zhenjiang Hu** (formal methods, program transformation)
- associate Prof. **Kensuke Fukuda** (next generation networks)
- associate Prof. **Hiroshi Hosobe** (constraint programming)
- associate Prof. **Gene Chen** (computer vision)

At Keio University:

- Prof. **Jun Murai**, ass. Profs **Keisuke Uehara**, **Hitoshi Asaeda**, **Rodney Van Meter** (Next Generation Networks)
- Prof. **Hide Tokuda** (ubiquitous computing)
- Prof. **Hideharu Amano** (HPC)

Also



- Short stays of French JFLI associate members and Ph.D. at JFLI in Tokyo (one week – a few months)
- Visits of other French (also international) researchers
- General JFLI workshops
 - “Kick-off” in Tokyo (2009), “young researchers” in Paris (2010)
 - Topics Workshops (Remark: depends on funding !)
 - in 2010 & 2011: HPC , Quantum Computing, Multimedia/VR , Next Generation Networks (2 projects)
 - In 2012: HPC, Next Generation Networks, “Shonan Meeting”
- Collaboration within AURA
 - Ph.C. to IPAL in 02/2012, PEPS proposal submitted (but not selected)
 - Visits of F. Richoux to IPAL, R. Fontugne to IPAL, S. Poulot to MICA, D. Nowak to LIAMA (forthcoming)

Funding



1. At JFLI level
 - basic operational budget by each partner
2. At topics level
 - bilateral programs:
 - “Image & Multimedia” JST-CNRS until 2010,
 - “Quantum Computing” JST-CNRS until 2010,
 - “Next Generation Networks” one JSPS-CNRS project until 2011, one JSPS-CNRS project until 2012
 - “HPC” (FP3C project) ANR-JST (ICT-2010) until 2013
3. At individual/team level
 - CNRS interdisciplinary project 2012

From LIA to UMI



Upgrade from LIA to UMI CNRS status

- signed on October 18 in Paris
- Effective from 2012/01/01
- Created for 4 years, renewable after evaluation

- Why UMI ?
 - better visibility
 - autonomy
 - for budget, personnel, funding applications, etc
 - access to funding opportunities (e.g. ANR & FP7 projects)

Current issues



- Educational Agreement with University of Tokyo
 - to host M.Sc. and Ph.D. students in JFLI lab
- Extension of UMI to other institutions
 - France (currently in signature process):
 - INRIA
 - University Paris-Sud (Orsay)
 - Japan (in the near future):
 - Kyoto University & Tsukuba University
- Patents
 - currently applying for one joint patent CNRS / NII
(based on research work of Ismael Daribo)