Image & Pervasive Access Lab.

Mounir Mokhtari. Dong Jin Song, Lu Shijian

www.ipal.cnrs.fr
International collaboration

**WHAT:** Image & Pervasive Access Lab (CNRS UMI 2955) – CNRS INS2I & INSIS

**WHO:** CNRS, I²R, NUS, UPMC (Paris), Institut Mines-Telecom, U. Joseph Fourier (Grenoble)

**WHEN:** 1.2011 to 12.2014 & 1.2015 to 12.2018

**WHERE:** Fusionopolis I²R (main site) and NUS Campus

*New site:* Biopolis (BII/A*STAR)

**Distinctive Feature I²R and NUS**
French-Singaporean joint Lab, focusing on ICT for health and wellbeing

http://ipal.i2r.a-star.edu.sg/

http://www.i2r.a-star.edu.sg/success-stories/ipal-joint-lab
# Background: IPAL Evolution

## Phase 1: DIVA project funded by NSTB (1999 to 2003)
- Co-Leaderships: Philippe Mulhem (CNRS) & Mohan Kankanhalli (NUS)
- Joint publications 70+, training of students, postdoc, RA at NUS
- Key outcome: IPAL is officially recognized by CNRS
- Technology: mid-level visual keywords (VK) + conceptual graphs etc

## Phase 2: Towards UMI joint lab (2003 to 2008)
- Co-Directors: Jean-Pierre Chevallet (CNRS) & Joo Hwee LIM (I2R)
- Top ranking in ImageCLEF, attracting interns, ICT-Asia projects
- Key outcome: IPAL made a name in France/EU and Asia
- Technology: Snap2Tell initiated, Medical VK, Text + Image indexing

## Phase 3: Developing UMI (2008 to August 2014)
- Co-Directors: Daniel Racoceanu (CNRS) & Joo Hwee LIM (I2R)
- More French researchers, **joint PhD supervision**, received grants from FR and SG
- Key outcome: SinFra 2009 & 2012, CNRS plans regional HQ in Singapore
- Technology: Health ontology, AAL, CAV, model checking,

## Phase 4: Sustaining Excellence (September 2014 to 2018)
- Director: Mounir Mokhtari (CNRS), Co-Director NUS: Dong Jin Song, Co-Director I2R, Shijian Lu
Ipalian Ph.Ds. successfully completed!!

- **Singaporean to France <-> French to Singapore**
  - Goh Hanlin, 2013 UPMC -> I2R
  - Antoine Veillard, 2013 NUS -> IPAL

- **Co-funded SG and FR**
  - Stéphane Rigaud, 2014 UPMC -> Institut Curie, P

- **Funded SG**
  - Sepehr RAHA, 2013 NUS -> City University London

- **Funded FR**
  - Humayun Irshad, 2014 UJF -> Harvard University
  - Hamdi Aloulou, 2013 IMT-UPMC -> CNRS LIRMM
  - Thibaut Tiberghien, 2013 IMT-UPMC -> IPAL

- **Industrial funding – THALES**
  - Antoine Fagette, 2014 UPMC -> THALES SOLUT
IPAL has 27 staff* in 2014 (2012: 33, 2013: 32)
› 6 Researchers (6 from SG)
› 9 Professors (5 from FR, 4 from SG)
› 3 Post-Docs (2 from FR, 1 from SG)
› 8 PhD students (2 current from FR, 1 current from SG, 5 new from FR/SG)
› 1 Executive Assistant (from FR CNRS Bureau SG)

*The 27 staff corresponds to 18 FTE.

IPAL is very attractive to top Interns students:
› IPAL welcomed 10 Master level interns in 2014.
› 17 interns positions opened for 2015.

Associate partners: BII/A*STAR, Univ. of Toulouse and Univ. Montpellier

2014-2015 Ph.D. campaign to recruit 20 IPAL Ph.Ds.
IPAL involved in 6 M€ project funding from 2010.

- Among the 6 M€ funding, 1.7 M€ went to IPAL.
- Among the 1.7 M€ to IPAL, 67% is from FR (ANR, FUI, CNRS, Grand Emruunt, etc.) and 33% from SG (JCO, SERC)

Projects.
- VHP Inter@ctive, Investment of the Future (Managed by CNRS)
- FlexMim, FUI (Managed by UPMC)
- Reliance, NUS - School of Computing (Managed by NUS)
- Chaire Quality of Life funded by Mutuelle Générale and REUNICA (Managed by IMT)

Perspectives.
- Horizon 2020 in collaboration with Qualcomm NRF via NUS
IPAL Project: 3 levels

Core scientific project

Inclusive Smart Cities & Digital Health

Contributing scientific project

Discussion with:
- THALES, cross-data analytics in urban space.
- PSA PEUGEOT-CITROEN. Smart vehicle and wellness.

Hosted scientific project

BII/A*STAR & I2R/A*STAR
Semantic biomedical imagining
T. Boudier, UPMC
Core scientific project

3 main research topics

- **Acquisition**: Sensing and Web/Social Media Data Analytics and Exploration
  - Sensing and Sensor Prototyping – indoor/outdoor localization, vital signs management, visual based human activity detection (L. Wong, J. Biswas)
  - Visual Attention based Analysis and Understanding of High-Content Visual Information (L. Joo Hwee, N. Ouarti, Lu Shijian, W. Tsang, M. Mukawa, S. Basu)
  - Web Mining and Social Media Analytics – uncertainty and contradiction handling, heterogeneous data fusion (S. Bressan, P. Senellart, Tuan Q. Phan, and T. Abdessalam)

- **Reasoning**: Semantic and machine learning Real-Time Reasoning
  - Context-Aware Cognitively Inspired Reasoning Engine, Uncertainty Handling (M. Mokhtari, T. Tiberghien, J. Belmunt)
  - Deep Learning (A. Veillard, H. Goh, O. Morere, V. Chandrasekhar)

- **Validation**: Formal Verification and Model Checking (J.S. Dong, L. Yan)
Living lab in Khoo Teck Puat Hospital (2015)
2-3 February 2015 Singapore
- IPAL Kick off Meeting
- SinFra’2015 hosted by

10–12 June 2015 ICOST’2015 Geneva, Switzerland