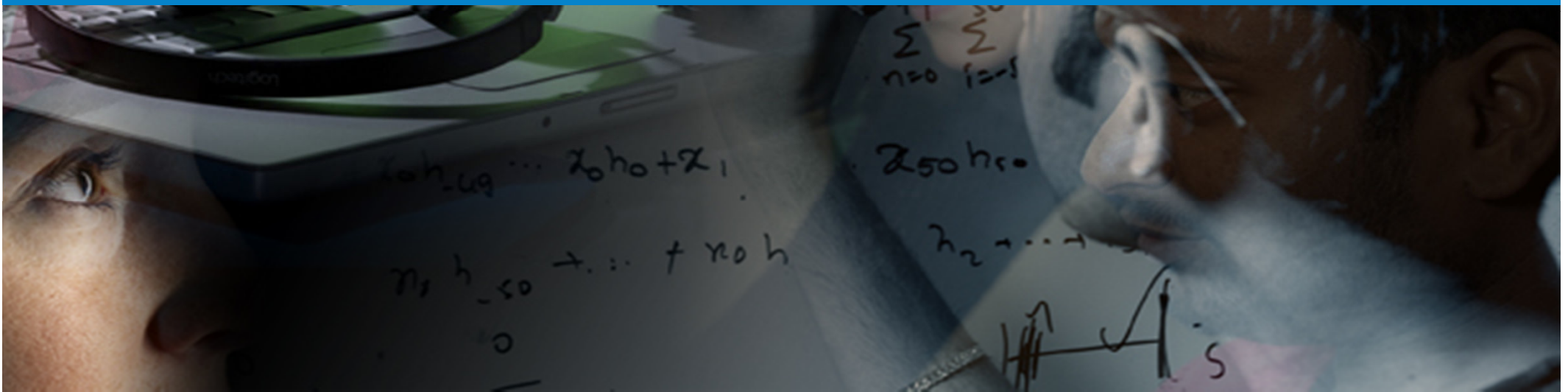


Prof. Hervé Bourlard
Idiap, Director
EPFL, Professor



EU Language Technology: What's Next?

LT-Innovate Summit, Brussels, 19 June 2012



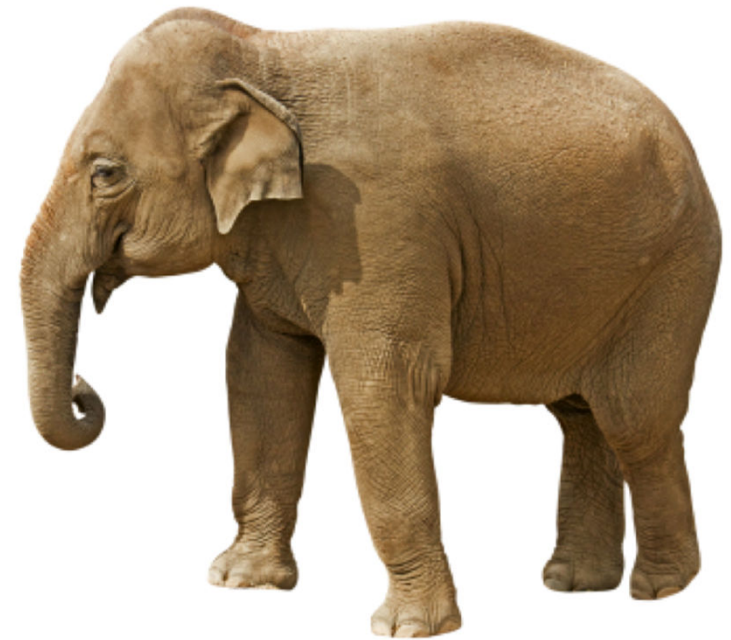
LT: Key Enabler of Knowledge Access... and Creativity

Feature	Stage 1 (Data processing)	Stage 2 (Internet)	Stage 3 (Knowledge/Experience-based)
Input	Data	Documents	Multimodal data (sensory modalities)
Output	Results	Information (hyperlinks)	Experiences & insights (hyper-events)
Interaction environment	Command language	Windows	Augmented interactive environments (social agents)
Applications	Computing	Information and communication	Enhanced/ubiquitous knowledge access, social interaction, collaboration & creativity

EU is very strong in all LT key research

But: THINK BIG!!!!

- Natural communicative interaction for all:
 - Conversations
 - involving people
 - involving machines
 - Assumption that communication is fluent and expressive
 - Transparent adaptation to languages, individuals, and domains
- Required innovations:
 - Enable all software to be linguistic, semantic, social, conversational
 - LT providing deep analysis tools for developers who know nothing about it
 - **Multilingual Conversational Middleware**





Think BIG!!!

Multilingual Conversational Middleware (Impact and Applications)

- LT is key to multimedia data mining, including video indexing (see Koemei SA)
- Information access, online analytics, etc
- Ageing population will demand much better assistive technology
- Assistive technology, support for independent living
- Smartphones, personal devices
- Games and entertainments
- The basics of this technology are now becoming commercially big: Kinect, Android, iOS/Siri



Think NEW (1)!!!

Seriously Smart Environments

- Intelligent, multisensor environments which can support **data access, interaction, work, creativity**.
- Multiscale from personal devices to smart cities. Transparent.
- Speech / language / interaction at the core, also sensor networks, machine learning, psychology, architecture, ...
- European competence exists but needs to be linked
- Strong opportunities for academic/commercial collaboration



Think NEW (2)!!!

Large Scale Unsupervised learning

- Online learning, huge data
 - Models for all things, no difference between 'train' and 'test'
 - Machines that learn through socialisation and interaction
- HLT + machine learning, cognition, human learning, social sciences, etc.
- Basic research which could be carried out in commercial settings – e.g., personal/social media
- Lots of EU expertise here too!





Research for Usable Technology

- Modalities for academic / commercial collaboration
 - Communities of interest
 - Support for commercial data & tasks to drive R&D
- Risks of a switch to more applied research
 - Applied research 10x more costly
 - Short-term – weakens research base
- Basic research driven by social/economic needs
- Limited success of standardisation in HLT
- Open data
- Missing areas for language resources
 - Large scale human-computer dialogues
 - Large scale, *real*, expressive interaction
- Support for open source architecture (software?), and for making it more usable beyond researchers