CHIST-ERA Projects Seminar Day 2, Cross Topics
Topic IUI

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❖ **eGlasses – The interactive eyeglasses for mobile, perceptual computing**

❖ **IMOTION – Intelligent Multimodal Augmented Video Motion Retrieval System**

❖ **JOKER – JOKe and Empathy of a Robot/ECA: Towards social and affective relations with a robot**

⇒ **Quite diverse set of IUI applications and technologies.**

What is intelligent in these UIs?

Major achievements and output

❖ **eGlasses**

   ✓ new ways of using existing technology

   ✓ comprehensive and adaptive user models

❖ **JOKER**

   ✓ communication model, expressive synthesis

   ✓ Context

❖ **iMOTION**

   ✓ multiple modes of interaction

   ✓ switching modes

Upcoming challenges and needs

❖ **User Models - need to be comprehensive & adaptive (learn from previous mistakes)**

❖ **Data Needs (Modeling & Evaluations) – both representativeness & good annotations**

  ✓ Methodologies for annotations.

  ✓ Methodologies for getting user needs.

  ✓ Challenge of privacy / ethics / reproductibility

  ✓ ML methodologies for limiting needs (tranfer learning, active learning, ...), making previoulsy unpractical things practical.

  ✓ In context evaluations

❖ **Deep Learning**

  ✓ Possible loss of application focus.

  ✓ Still little contribution of DL from IUI point of view.

❖ **Interaction Modes**

✓ Quite comprehensive range of modes identified already in the call (voice, dialogue, sketch, tangible, haptic, body, gaze, augmented reality, BCI, traditional interfaces, …)

- **Automatic selection of most effective fusion given context/user/application.**

- **Get these mode work in natural contexts & ambiguity.**

- **Grounding.**

- **Assistive technologies.**

❖ **Information Visualization**

✓ IUI are inherently interactive

❖ **Interaction between technology development and user behaviour changes**

✓ Acceptance, accustomization, learn from early failures, etc…

Upcoming challenges and needs

❖ **Proactive/predictive interfaces**

  ✓ Sensing Context and Human

  ✓ Special needs

information

classification /
organisation
(ML, DNN)

user interface

task / user
(collaborative) need

❖ **Milestones**

✓ Behavioural model

   ▪ **User needs**

   ▪ **Ethical aspect**

   ▪ **List of user actions**

   ▪ **Sensing and tracking, etc.**

✓ Cognitive model. Long term model: needs, personality, interests?

✓ Collective and social interactions.

✓ Adaptive modeling.

✓ Predictive modeling.

✓ Big challenges and societal needs.

Role of the CHIST-ERA support

- ❖ **Open ended**
- ❖ **Community consultations**
- ❖ **New EU partnerships**
- ❖ **Synergies through consortia**

- ❖ **Keep main differentiator: fully understanding a problem (academia) vs. finding solutions quick enough (industry)**
- ❖ **Support for reseach on proactive interaction**
- ❖ **Knowledge transfer "dating agency" or "mapping" of actors**

Questions ?