

## **0 - Title: COMPANIONS: Intelligent, Persistent, Personalised Multimodal Interfaces to the Internet**

Leader: Professor David Benyon, Napier University

### **1 – Atelier content**

Large groups of EU citizens will need new forms of interface to the Internet if they are to get benefit from it as it grows more complex: these include huge numbers of mainstream citizens, since the Internet simply does not serve the average non-technical person as well as it does the academics who invented it. Beyond a few simple purchases such as holidays half the EU population make no effective use of the Web at all, and many people are actively hostile to it. Use of the Internet to access and organise information is limited to current interaction mechanisms such as browsing. Such new forms of interface should be available across a wide range of platforms, from PCs and TV screens to mobile devices, including phones. The deluge of information on the Internet will increasingly be about individuals, and will include their own digital repositories (texts, videos, images) as well as information held about them. Most citizens will have little control over this, their own digital life, without some new form of assistive interface to the Internet. There is already an established need for individuals to organise their own life material, and to give a narrative structure to their lives, particularly when old.

These needs have not been well met by current interfaces based on browsing, profiling and adaptation, and there is good evidence that a more directly personal interface will be more acceptable. A technological solution to this need, in part at least, is a persistent, personalised, **COMPANION** agent, one that will “know” its owner, chat to the elderly to relieve their boredom, and become the multi-modal interface agent to the Internet for that owner, whatever their age or technical competence. We shall call these agents **COMPANIONS**.

**COMPANIONS** will learn about their owners: their habits, their needs and their life memories. This will allow them to assist with carrying out specific Internet tasks, which will be facilitated by having complex memories of their owners built from texts, conversations, images and videos. Some of this will already be in digital form, but some will be information gleaned from conversations with the **COMPANION**, information relatives and friends will want later, after the owner’s death, but might never have been able to ask, such as “where did you and your husband first meet?”

Interfaces to the Internet must become less programmable, less like the computers for enthusiasts they started as. Computers are now not used, in general, to write programs at all, but still have interfaces as if they were; the **COMPANION** is the next stage of evolution of the Internet interface.

The design brief is to research, design and evaluate a **COMPANION** within the context and themes of the Summer School. There are many design issues to be addressed including:

- Embodiment – how should a COMPANION be represented (screen-based, a physical object, etc.)?
  - Mobility – how mobile should a COMPANION be and how can it maintain character as it moves?
  - Emotion – how can or should we design for an emotional COMPANION?
  - Security and trust – a COMPANION must be wholly robust and trusted by its owner. How can this be achieved?
- Interaction - Will we be able to talk to our COMPANIONS? Should we talk to our COMPANIONS? How can the poor state of speech technology be covered up by good interaction design? What other methods of interaction should there be?
- Modalities – How can the COMPANION deal with multiple modalities such as speech and vision as input or output devices?

## **2 - Relevance to School Title, Scope and Aims**

- a) The Atelier will allow students to focus on the next generation of human-computer interaction that will throw away the business-centred, programming-like interfaces in favour of something new. The concept of COMPANION is new; it can be interpreted in any way you choose.
- b) Professor Benyon has championed human-centred design throughout his career and has developed novel methods, particularly on scenario-based design, to help ensure designs are centered on people. (See below for reference).
- c) The Edinburgh Festivals will provide a fascinating back drop for this atelier as we could all do with a COMPANION to help us find out what is on, what is good and to organize our photos, video and other experiences.

## **3 - Atelier Leader Experience**

David Benyon has considerable experience as a teacher and researcher in human-computer interaction and interaction design. In 1994 he was co-author of the best selling book called Human-Computer interaction and in 2005 co-authored *Designing Interactive Systems* (Benyon D., Turner, P. and Turner, S. (2005) *Designing Interactive Systems* Addison-Wesley). Since 1996 he has been Professor of Human-Computer Systems at Napier University, Edinburgh. The project description is taken from a large EU grant that should soon be funded under the 6th framework programme. Students can expect an energetic and highly knowledgeable atelier.

## **4 - Scientific Novelty and Value**

The novelty of David Benyon's approach may be summed up by the subtitle of his book; People, Activities, Contexts and Technologies, PACT. This framework underlies the whole experience of interaction design and evaluation. Applied to the highly novel concept of COMPANIONS produces a great opportunity for the atelier.

## ***5 -Overall Judgement***

This is a challenging brief, but an exciting one. The down side is that in the time available a real 'live' COMPANION will probably not be produced. The creative use of prototypes and the technical skills of the team, however, will ensure that something interesting and useful comes out of the work.

## ***6 - Recommendation for Retaining the Atelier in the School Program***

Three reasons for choosing this atelier are:

- working with a leader who is highly experienced in human-centred interaction design
- working on a project that has many, many interesting areas to focus upon
- working on a project that may feed into a real research project that may need to employ interaction designers.