Laughing Virtual Characters

The research is part of a European Project ILHAIRE. It is a 3 years FET-Open project whose main topic is laughter. Laughter is a significant feature of human communication, and machines acting in roles like companions or tutors should not be blind to it. So far very limited progress has been made towards allowing computer-based applications to deal with laughter.

ILHAIRE will lay the foundations of truly multimodal, multicultural laughter-enabled man-machine interaction, by associating experts of the different disciplines linked to this objective.

Work to be done:

Our research has two main objectives:

1- It aims to develop models for generation and synthesis of laugher. Generation means finding the sound, phoneme, body postures, and facial action unit sequences that are appropriate in a given conversational context. Then, synthesis means providing the acoustic and visual representation of those. Data collected and annotated in other tasks by other partners will be used through two complementary approaches. The first is to transfer directly the motion capture data onto the 3D graphics model. The second is to develop a procedural animation model. Data will be represented as a sequence of different signals partially ordered in time and belonging to different nonverbal communicative channels. We will apply a learning algorithm to capture the relationships between these channels. The accuracy and believability of this generative model of laughter will be evaluated.

2- We will be interested not only on hilarious laughter but also conversational ones. We will add laughter to a dialog model that will determine when to laugh, when to respond to user's laugh, when contagion occurs. We will have to pay particular care of temporal issues as not having delays in response (laughing too late may have a very negative impact), and of mimicry (mimicking laughter could be interpreted as mockery).

Pre-requisite: C++, Java, 3D animation, motion capture
Project Length: 1 year post-doc
Place: TELECOM ParisTech
Stipend: depends on applicant qualification (around 2400 euros)
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