IST Cross-programme Concertation Meeting on Representation Formats/Languages

Date: 18. July 2002
Time: 13.00 – 18.00
Location:
Faculty of Engineering, University of Bologna
DEIS Building, First Floor, Room 5.6
Viale Risorgimento 2
Bologna, Italy

Organised by Brigitte Krenn BK (NECA)

Programme

Presentations (in order of appearance):

Yasmine Arafa: CML (Character Markup Language) in SAFIRA
Comment BK: As requested by the audience, Jasmine Arafa used her speaking time to present a comparison table for animated character markup languages. The aim of this endeavour is to increase the awareness of who is doing what in the field. The table triggered further discussion of which are relevant parameters for comparing animated character markup languages.

Kaveh Kamyab: Avatar Mark-up Language AML
Comment BK: Based on work in SoNG and work on AML, Kaveh Kamyab discussed the following questions: In which sense is the representation language extendable? What was the language primarily defined for? Which actions are supported by the language? Moreover he confronted the audience with the general questions: Is a common taxonomy for unified representation languages possible at all? What can be common and to which granularity?

Nadja de Carolis: APML
Comment BK: Nadja de Carolis gave a presentation of the languages DPML (dialogue specification), APML (description of the performance of the agent) and FDL (facial description). A crucial point she made in her talk was the need for automatic mapping/translation between languages and from a language to the body.
Paul Piwek/Hannes Pirker: the NECA RRL

Comment BK: The speakers agreed to skip the presentation in favour of free discussion time, as the NECA RRL has already been presented to the majority of the audience during the AAMAS Workshop “Embodied conversational agents – let’s specify and evaluate them.

Andrew Marriott/Simon Beard: VHML

Comment BK: A brief introduction to VHML was given and the standardisation process was discussed. The presentation triggered questions from the audience such as: How can VHML deal with contradictory information? Could a trained actor use VHML to represent various expressions? How well can speech be integrated with animation?

Jan Allbeck: Parameterized Action Representation

Comment BK: PAR differs from the other approaches presented as it is a fairly elaborate system for combining actions and not a representation language or a collection of representation languages. An important goal in the work on PAR is the design and implementation of appropriate transitions between actions. In order to use PAR a whole bunch of system components need to be installed.

Stephen Crampton: The h-anim avatar

Comment BK: Stephen Crampton elaborated on the standardization process of H-ANIM. In analogy he tried to suggest goals for bringing further the standardization of animated character representation. This however was opposed by a general feeling expressed by the audience that first of all a consensus about levels of representation and their granularity should be achieved.

Marius Preda: MPEG-4 SNHC tools

Comment BK: In his talk on MPEG-4 Marius Preda concentrated with respect to standardization on requirements for industry standards. From Marius’ contribution and the reactions to Stephen Crampton’s suggestions for standardization of animated character markup it became clear that we have to distinguish between two strands of discussion: a) industry standards (not yet relevant for animated character markup), b) an agreement on standard representation levels and their content (this is what we should aim for in the near future).

Fabio Lavagetto/Maurizio Costa: FAE – The Facial Animation Engine

Comment BK: Fabio Lavagetto and Maurizio Costa approached the standardization discussion from the point of view of animating talking heads.

See also Appendix A for Andrew Marriott’s comments on the presentations.
Discussion Session

The discussions were influenced by the questions and topics raised during the oral presentations. Apart from Marius Preda, Stephen Crampton and Adrew Marriott, i.e., those people who are already involved in standardization processes, a broad uncertainty about what appropriate standardization could be with respect to animated character markup was encountered.

Jeff Rickel from ISI pointed out that in many systems the modularisation of components, such as a behaviour planning module on the one hand and a character player on the other hand may require a communication protocol rather than a mere scripting language. For instance, for an agent to plan its next action, the planning component needs to know the current state of the body. Therefore, the player component must either communicate body state information to upper components or at least make such information accessible for other components.

The discussions also made clear that for the time being there is no or little common understanding and common practice in animated character markup. As a first step to overcome this lack of consensus Thomas Rist has suggested a meeting in the near future where we discuss which levels of representation are important/essential/relevant for animated character markup. He presented a list of upcoming events in the context of which such a meeting could possibly take place.

a. 2002 August 19, PRICAI Workshop on Lifelike Animated Agents, Tokyo, Japan

b. 2002 November 4-5, IST conference: Animated Character Technology Workshop and Exhibition, Kopenhagen, Denmark

c. 2002 November 29, Human Factors Conference and OZCHI’2002, Workshop on Virtual Conversational Characters: Applications, Methods and Research Challenges, Melbourne, Australia

d. 2003 September 15-17, 4th IVA Workshop (Intelligent Virtual Agents), Kloster Irsee, Germany

Helmut Prendinger (Dept. of Information and Communication Engineering, Graduate School of Information Science and Technology, University of Tokyo) has already taken up this suggestion and proposed a discussion session at PRICAI’2002 during which the following topics shall be addressed:

__________________________________________________________________

Markup languages for controlling animated characters

What is the purpose?

(a) easy-to-use tool for non-programmers (animate my web page)

(b) power tools for content experts (design a commercial web page that allows interacting with an animated agent)

What are the scripting levels?

(a) speech synthesis, body animation, face animation, speech+gesture, dialogue, story plot, ...
(b) emotion, personality
(c) one character, a group of characters, interaction with environment
(e.g., web page)

Should levels be mixed in one markup language?
(a) a metaphor of "movie director" ("TV spot director")
suggests the sequence of actors' behavior, applies fine tuning on particular scenes

(b) are markup languages sufficient, do we need interaction with AI tools
(notion of dialogue in VoiceXML vs. dialogue in COLLAGEN)?

To further promote the discussion on animated character markup, two platforms for discussion were suggested.

1) There is a mailing list on markup languages for animated characters which is supervised by Frederic Vexo (frederic.vexo@epfl.ch) and Sumedha (sumedha@miralab.unige.ch).

2) A mailing list (eca_list@vhml.org) supervised by Andrew Marriott.
List of participants:

Jan Allbeck, Center for Human Modeling and Simulation, University of Pennsylvania
Yasmine Arafa, Imperial College, London (Safira)
Simon Beard, Curtin University of Technology - Perth Western Australia (Interface)
Carlo Bonamico, DIST University of Genova, Italy (Interface)
Gaspard Breton, France Telekom
Stephen Crampton, Avatar-Me, London /ADA Bulgaria (Magicster, VIP Advisor, Avatar Conference, e-T Cluster)
Nadia DeCarolis, University of Bari, Italy (Magicster)
Jonathan Gratch, Institute for Creative Technologies, University of South California, USA
Phil Hand, Avatar-Me, London, UK
Katherine Isbister, San Francisco, USA
Mitsuru Ishizuka, University of Tokyo, Japan
Ido Iurgel, ZGDV, Zentrum fuer Graphische Datenverarbeitung, Germany (Embassi, Map, Geist)
Kaveh Kamyab, Imperial College, London (Song)
Martin Klesen, DFKI, Saarbrücken (NECA)
Alfred Kranstedt, University of Bielefeld
Brigitte Krenn, ÖFAI, Vienna (NECA)
Sumedha Kshirsagar, CUI, University of Geneva, Swiss
Fabio Lavagetto, DIST, University of Genova, Italy (Interface)
Andrew Marriott, Curtin University of Technology - Perth Western Australia (Interface)
Ivica Mitrovic, University of Split, Croatia
Han Noot, CWI Amsterdam, Holland
Aldo Paradiso, Fraunhofer IPSI
Catherine Pelachaud, Universita di Roma “La Sapienza” (Magicster)
Paolo Petta, ÖFAI, Vienna (Safira)
Hannes Pirker, ÖFAI, Vienna (NECA)
Paul Piwek, ITRI, Brighton (NECA)
Marius Preda, Institut National des Telecommunications, (MPEG-4 SNHC)
Helmut Prendinger, University of Tokyo, Japan
Juriy Radkov, ADA, Bulgaria
Jeff Rickel, Information Sciences Institute, University of South California, USA
Thomas Rist, DFKI, Saarbrücken (NECA)
Zofia Ruttkay, CWI Amsterdam, Holland
Bill Swartout, Institute for Creative Technologies, University of South California, USA
Neil Tipper, ÖFAI, Vienna (NECA)
Frederic Vexo, Virtual Reality Lab, EPFL – Swiss Federal Institute of Technology Lausanne (Interface, SONG)
Appendix A

Andrew Marriott:
Comments on the Presentations

Jan Allbeck: Parameterized Action Representation
Not a markup language – more a structure for holding relevant information and for specifying dynamic action at the execution level. Very detailed, well tested due to its age but as Jan says, not everything is properly integrated. Solid work as you would expect from Badler et al. (See http://www.vhml.org/workshops/AAMAS/papers/allbeck.pdf)

Yasmine Arafa: CML (Character Markup Language) in SAFIRA
Kaveh Kamyab: Avatar Mark-up Language AML
I have grouped these two together because they presented almost together. They had a paper in the real workshop on the Tuesday that many of us had listened to. They gave a brief summary of AML and CML. This was similar I suspect to the presentation given at the Bruxelles IST meeting that you mentioned although it was basically just the large comparison table of the various languages. Yasmine invited further headings for the table – some obvious ones were missing like: open specification, evaluated?, consistent?. She added these happily and later they produced photocopies of the table for people to take away with them for study. Yasmine asked for comments/updates to the table but it was too early for most people to be able to comment seriously. I think most people could see (from the table) that there was a definite AGENT-AGENT Planning group of languages and a character direction group of languages. See http://www.vhml.org/workshops/AAMAS/papers/Kamyab.pdf

Stephen Crampton: The h-anim avatar
He prefaced his talk by saying that it wasn’t really a markup language talk as such but that he could talk about what worked for standardisation re the H-Anim group. This was very effective because I believe that arguing about the tags is pointless, making certain that the language is useful is more important and this means meeting standardisation criteria. He gave us his experience of the standardisation process and tried to help us realise where we may go wrong and what limitations/delimitations we can put on our work to improve the standardization process. He also tried to give us a goal at the end of the discussion but I feel that maybe that was a bit premature as most people were still at the “tag specification” stage. I believe he was successful in getting us to think about the process not just the specifics (at least he was with me).

Fabio Lavagetto/Maurizio Costa: FAE – The Facial Animation Engine
In reality, Fabio and Carlo Bonamico from DIST talked about and demonstrated an application that uses one standard – MPEG-4 FAPs – and how they would benefit from having a standard for directing the Talking Head. They reported on some early work of VHML-like tags in putting emotion into the Talking Head and also Carlo reported on his 3 month collaboration with Curtin re VHML and integrating a VHML-based Dialogue Manager into their Talking Head system. This collaboration will continue with Simon Beard visiting DIST for 3 weeks in late September.

Andrew Marriott/Simon Beard: VHML
Same old rubbish from these guys :) We handed out printed copies of the presentation to the attendees (brought all the way from Australia – see appendix C). I gave a brief introduction to VHML and then concentrated on talking about the standardization process and what is needed for a solid language:
• Solid Open specification,
• Evaluation of specification, of language implementation and of language examples,
• Integration of the implementation into API’s and libraries,
• Demonstration of the language in interfaces,
• Tools for content creation/modification.

Finished with Simon showing the first full implementation of VHML from the specification using Java – an application for web pages called Spiky Boy. Simon will visit UPC (Barcelona), DFKI (Saarbrücken), CWI (Amsterdam), UniRoma (Rome) and DIST( Genoa) as part of VHML collaboration/dissemination. See
http://www.vhml.org/workshops/AAMAS/papers/marriott.pdf and

Catherine Pelachaud: APML

Given by Nadja de Carolis – one of Catherine’s colleagues. More detail than the Tuesday talk – she had reduced time then. Detailed APML – the Affective Presentation Markup Language and also DPML - a discourse planning markup language and how these two, along with a behaviour generator and a system for producing new subtle facial expressions (based on FAPs), can produce believable behaviour in an ECA. This work again shows how the need for a standardized language is becoming important – if not because of the tag names but because of what needs to be formally specified. Thought provoking in some of the comments made about language development and use. See

Paul Piwek/Hannes Pirker: the NECA RRL

An excellent example of the Agent-Agent Planning type markup language. Unfortunately, the authors did not elaborate much on their Tuesday talk. The scope of this system is very large and represents a significant advance in Agent planning. Their paper reported typical problems in representation and typical solutions (for example the appropriateness of using XML, timing specification, the need for careful thought and planning). I would like to have heard more discussion on some of these problems. Another thought provoking paper (also humbling when you realize the extent of the work). See

Marius Preda: MPEG-4 SNHC tools

Very long but interesting talk about the MPEG standard (not really relevant) and how it came about (more relevant). Concentrated too much on MPEG-4 and not enough on how we could go about building a language standard. Of interest to me (and hopefully to others) was his declaration that VHML (or a similar language) could be standardized under MPEG-7. It was not obvious to me even after questioning him, exactly how this could come about. I think I was lost in the “process” terminology of MPEG. But it was important enough for me to make a note to follow it up via Ferran Marques of UPC.

I would suggest that a special IST CONCERTATION workshop be held regularly about taking IST deliverables and standardising them (or at least, properly “delivering” them so that they become standard references). This would be very useful for our group. We spent a long time working out whether VHML could fit into the European standardisation process and “experts” thought that it could not fit anywhere – now Marius says “yes”! Perhaps previous “expertise” was based on politics rather than information :?) If this is done already at IST Concertation workshops, please forgive my ignorance.
Appendix B

Andrew Marriott:
Comments on the Discussion Session

The discussion after the presentations was very open – that is, it was not very directed although Thomas Rist tried to impose some order and Stephen Crampton tried to get us to accept some goals or objectives to drive an agenda for future meetings. My personal opinion was that people were still digesting what they had just learnt and would not commit to anything.

Email addresses of participants were collected to be added to an IST-bologna mailing list, Sumedha’s email list was mentioned as a good place for talk about ML’s, etc.

Thomas Rist suggested a meeting in the near future where we discuss which levels of representation are important/essential/relevant for animated character markup. He also presented a list of upcoming events in the context of which such a meeting could possibly take place.

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Overall, the workshop was useful to me because it opened up a large number of opinions and points of view. These are useful if we are to go forward in building a standard language. Comments from Stephen Crampton and Marius Preda were particular useful in the context of what we need to do.

Hope this covers the extent of the IST workshop in Bologna, 18th July 2002