status: proposal discussed but not taken up

XML-based Multimedia – Advanced Topics in Web-based Multimedia

Lecturers: dr. Z. Huang and dr. A. Eliëns

Credits: 6 etcs / 4 stp

Content: XML is becoming a standard for the encoding of multimedia data. An important advantage of XML-based encodings is that standard XML tools, such as XSLT stylesheet-based processing, are available. Another advantage is that the interchange of data becomes more easy. In this course, an introduction will be given to XML and related technologies, such as XSLT. As examples a number of XML-based media formats will be treated, including SMIL, X3D, Speech ML, Voice XML. In addition, research will be discussed that aims to unify XML-based formats to arrive at a uniform presentation platform for conversational agents, such as VHML and STEP.

Outlines of the course:

1. *Introduction*: Extensible Markup Language (XML). Extensibility and profiling of web-based multimedia. Streaming. Model of timing and synchronization of web-based multimedia.

2. *Processing XML*: XSLT stylesheets, Java-based XML Processing, SAX, DOM, Java XSL object APIs

3. *SMIL*: (Synchronized Multimedia Integration Language) SMIL modules: animation, content control, layout, linking, media object, metainformation, timing, and profiles.

4. *X3D*: (XML-based VRML) Extensible 3D: architecture and based components, profile reference, translation between VRML and X3D. X3D examples: case studies.

5. *VHML*: (Virtual Human Markup Language) Virtual Human Markup Language, Humanoid, H-anim specification, Speech Synthesis Markup Language Specification for the Speech Interface Framework (Speech ML), Voice Extensible Markup Language (VoiceXML). Text to Speech Technology.

6. *STEP*: (Scripting Technology for Embodied Persona) and XSTEP Embodied agents: architecture and functionality. STEP: a scripting language for embodied agents. XML-based scripting language for embodied agents.

7. *Presentation agents*: Embodied agents and multimedia presentation: theory, model, and practice.

References:

1 SMIL web site: www.w3.org/TR/smil2/.

2 STEP web site: wasp.cs.vu.nl/step/.

3 VHML web site: www.vhml.org

4 X3D web site: www.web3d.org/TaskGroups/x3d/

5 XML web site: www.w3.org/xml/