

Research Statement

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My main research is concerned with intelligent multimedia technology, which is a study how multimedia information can be created, presented and interacted with users more efficiently and intelligently. It covers the areas of multimedia, web technology, software engineering, virtual environment, and agent technology. Since march 2000 I have been working in VU on several projects involving intelligent multimedia technology. It leads to 14 publications which appear in international conference proceedings and workshops, and books. Cooperating with Anton Eliens, Cees Visser at VU, and others, I have achieved the followings:

- propose a taxonomy for web agents, and develop an agent architecture for web agents[Huang et al. (2000), Huang et al. (2001)], co-authored with Paul de Bra (TUE).
- develop an intelligent multimedia platform for 3D web agents, which is based the Distributed Logic Programming Language (DLP) and VRML, the standard Web3d technology[Huang et al. (2001), Eliëns et al. (2002)].
- develop and implement the approach of 3D agent-based virtual communities [Huang et al. (2002)].
- propose and implement STEP, a scripting language for embodied agent, and XSTEP, an XML-based markup language for embodied agents [Huang et al. (2002b), Huang et al. (2003a), Huang et al. (2003b), Huang et al. (2003c)].
- develop several models for reasoning about situations and computation with inverse kinematics for intelligent virtual agents[Huang et al. (2003d)].
- develop and implement several applications of embodied agents, including gesturing agents[Ruttkay et al. (2003)], co-authored with Zsafia Ruttkay (CWI).

I believe that our work is furthering the state of the art in the researches of web-based intelligent multimedia technology. Considered the fact that within five months (from January 2003 until present), I have five more publications, submitted three more papers, and worked on a manuscript for a book on intelligent multimedia technology, I am in the most creative and productive stage in my research career. What I have achieved are due to that I have a strong research

team and a stimulating environment at VU. It will be extremely disappointing to me if I cannot continue to work at VU to pursue the promising and exciting research.

In addition to the work in intelligent multimedia technology, I have also done some cooperation work with young researchers at VU. Cooperated with Leon van der Torre (Postdoctor at AI), Mehdi Dastani (Postdoctor at AI), Joris Hulstijn (TUD at AI), and Jan Broersen (OIO at IMSE), I have contributed to develop the formal theories of the BOID architecture for intelligent agents, which leads to four more publications during the years 2000-2002[Broersen et al. 2001, Broersen et al. 2001b, Dastani 2002, Broersen et al. 2002].

I am the member of the program/organizing committee for five international workshops in computer sciences, and have been invited to a reviewer for many conferences/workshops and some journals. I have edited three Proceedings of international workshops in agent technology. Of my more than 50 publications, some of them appear in the main journals in AI and logic, including *Journal of Artificial Intelligence*, *Journal of Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, *Journal of Computational and Mathematical Organization Theory*, and *Journal of Logique and Analyse*. See my CV for details.

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