1) NWO/CATCH grant request: I-GUARD

1a) Intelligent Guidance in Artist's Digital Dossiers

1b) I-GUARD

1c) Dr. A. Eliëns
Address: Faculty of Sciences, Div. of Mathematics and Computer Science, De Boelelaan 1081, 1081 HV Amsterdam, email: eliens@cs.vu.nl

2) Summary:

3) Classification:

4) Composition of the Research Team:

name	expertise	affiliation	hours/week
Dr. A. Eliens	multimedia	VU/IMSE	8 (coordination)
Dr. Z. Huang	agents	VU/AI	8 (WASP/RIF)
Drs. C. Visser *)	DLP	VU	18 (programmer)
*M. Hildebrand **)*	AI/CS	VU	32-36 (OIO)
... ***)	...	...	2 (promotor)

The research will be executed within the *intelligent multimedia* group at VU, under the supervision of Dr. A. Eliëns[1] and dr. Z. Huang. *) Drs. C. Visser will provide programming support during the full four years of the project, of which two years will be covered by the requested funding (see 10). **) M. Hildebrand is currently a student at the University of Utrecht and is the proposed candidate for the assistent research position of the IMMEDIATE project. ***) The promotor will be from the SIKS research school.

5) Research School: SIKS

The partners are members of SIKS (the Dutch Research School for Information and Knowledge Systems, www.siks.nl).

6) Description of the Proposed Research

6a) Scientific aspects

6b) Innovation

6c) Relevance for cultural heritage

7) Work Programme

A brief summary of the issues that will be tackled and the deliverables that we expect to produce during the four years of the project looks as follows.

- year 1: identification of major issues – *pilot applications 1 & 2*

[1] See www.cs.vu.nl/∼eliens/cv for his CV.

- year 2: *interpretation and learning* – target application 3
- year 3: *repertoire of actions* – target application 4
- year 4: wrap up & thesis

In the first stage of the research, the work to be done by the proposed candidate, Michiel Hildebrand, will be a follow-up on his master thesis, which describes a first exploration of the use of a natural language interface, and interpretation and learning mechanisms for embodied conversational agents developed with the technology of our *intelligent multimedia* group. The initial idea is to endow agents with a basic repertoire of actions and a set of capabilities that allow the agent to understand commands from the user and explore and manipulate properties of the world. Capabilities may be represented as (*condition, action*) pairs. To deal with the world, the agent must also maintain a set of beliefs about the world, recording the knowledge of the agent at a particular point in time. However, to be able to acquire information about the world, the objects in the world must be annotated with meta-information, which must somehow be accessible to the agent.

In his master thesis, Michiel Hildebrand explored a sequence of scenarios of increasing complexity, starting with a scenario which allowed only direct commands and a fixed number of objects about which the agent had full knowledge, to scenarios that required interpretation and desambiguation to understand commands, exploration of the world to identify objects, and learning to be able to respond to commands. In the most complex scenario, capabilities themselves are considered information (or beliefs), thus allowing for acquiring dynamically new behaviors in the course of interacting with the user. In analogy with the *level of detail* rendering technique (which results in rendering distant objects with less detail), we also explored the notion of *coginitive level of detail*, which amounts to giving access to more information about objects with increasing proximity (relative to the agent).

The candidate researcher will work in close cooperation with the other members of the *intelligent multimedia* research group (consisting of dr A. Eliëns, dr. Z. Huang and drs. C. Visser), to explore the topics mentioned and to further enhance the *intelligent multimedia* technology that is being developed. [STEP2], Eliëns et al. (2003)

education track

The advanced education of the candidate researcher will mainly be taken care of by the standard courses offered by the SIKS research school. (See www.siks.nl) In addition other courses may be adviced when the occassion arises.

8) Literature

References

[XXX] STEP2 missing reference

[Eliëns et al. (2003)] Eliëns A., Dormann C., Huang Z. and Visser C. (2003), A framework for mixed media – emotive dialogs, rich media and virtual environments, Proc. TIDSE03, 1st Int. Conf. on Technologies for Interactive Digital Storytelling and Entertainment, Göobel S. Braun N.,n Spierling U., Dechau J. and Diener H. (eds¿), Fraunhofer IRB Verlag, Darmstadt Germany, March 24-26, 2003

9) Requested Budget

personell	period	euro
OIO	4 year	135.762
programmer	2 year	112.138
		247.900

Remarks:

- the amount of euro 135.762 includes the benchfee for travel expenses and other support.
- the VU will provide an additional 2 years of programmer support.