

Title: *IMMEDIATE -- Intelligent MultiMEDIA Transactions Environment*  
Code: 600.065.120.03N01  
PI: Dr. A. Eliëns

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**1. What is your opinion about the scientific merits of the proposed research?**

The questions this proposal addresses are ones of current importance. I feel that it lacks an extraordinary amount on detail on both the methodology to be pursued and way in which it's success or failure may be evaluated.

**2. Can you identify a clear scientific goal?**

The goal is to develop interactive embodied virtual agents. These agents communicate with one another, with the user, and with the world through multimedia transactions. These transactions are apparently to be derived from the logical formalisms developed by the investigator.

**3. Does the research open up new grounds by generating new concepts, a deeper understanding or new methods?**

It could demonstrate the power or limitations of logic-based communication approaches to agent communication and knowledge acquisition.

**4. What is your opinion about the research team?**

They have only limited engagement with the mainstream agent research community. Their papers have appeared in minor workshops and meetings. They seem to be active in the Web3D community which tends to be oriented toward practitioners rather than researchers.

**5. Do you have remarks about the direction of research as laid out in the proposal? Is the schedule realistic?**

They propose building four example systems. I would rather have heard about how they intend to do this and how that work advances what is already known or done in these domains. They may have four systems, but I question how realistic these agent's actions and behaviors will be. Over four years, the work may be possible.

**6. Are personnel (number and level) and additional equipment, as requested, justified (please note that OiO is equivalent to PhD-student)?**

This is reasonable for focusing on the transaction representation.

**7. In case a PhD student is requested; how do you judge the research training aspects of the proposal?**

The student will learn a lot by actually implementing this, and should be encourage to keep abreast of the numerous other relevant research projects around the world.

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**8. Please comment on the overall quality and urgency of the research laid out in this proposal.**

The work lacks detail but otherwise will help evaluate the worth of logic-based systems as a substrate for embodied agent actions. There are few other significant logic-based transaction approaches, so this is not urgent, but establishing the validity of the approach could be influential for other researchers.

**9. Do you have special remarks about the proposal?**

There is much redundancy in the text; space that could be better used to describe the methodology and approach to these complex behavioral problems. I do not personally favor logic-based work for this agents application domain as it possesses disadvantages in its semantic and syntactic rigidity with respect to human behavior and continuous action, and presents difficulties in formulating real-time logic engines that can work with useful temporal and parameterized data of any complexity. Nonetheless, I would prefer to give them a chance to take their work to the real research community and have it validated against the current paradigms rather than negatively pre-judge it here.

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**1. What is your opinion about the scientific merits of the proposed research?**

Inasmuch as it is unclear on what level of concreteness the proposed agents will be implemented, the scientific merits of this proposed research are hard to judge. As an example, the proposal mentions 3D virtual spaces in which agents have to perform specific tasks, but without knowing what type of constraints will be present, and what type of competences the agents will have the nature of the problem to be solved is not sufficiently clear. Basically this holds for the two pilots studies and for the two applications, whereas the tasks in all four situations are considerably different. The description does not provide much, if any, detail about underlying theoretical frameworks that could be used in modeling and implementing the agent behaviour, and is limited to a succinct discussion of the platform and some comments about the scripting. In this sense the proposed activities seem more like an exercise in software engineering than a programme of scientific endeavour.

**2. Can you identify a clear scientific goal?**

Corresponding to the comments under 1.) a scientific goal, e.g. intent on discovering new knowledge and extending the insight on effective and embedded behaviour of embodied agents is not mentioned. Instead, the aim is to develop a collection of *transaction primitives* for mentioned agents, (which by itself is a worthwhile object of study), that, however, is entirely unconnected to any kind of descriptive behavioural framework. Well-known concepts that have been offered in recent years about the definition and implementation of agent behaviours are completely lacking. It remains, therefore, to be seen what the *transaction primitives* that will be developed can be used for, and, specifically, whether they have any sustaining power in a range of different behavioural architectures.

**3. Does the research open up new grounds by generating new concepts, a deeper understanding or new methods?**

The only new concepts that will be generated are the aforementioned transaction primitives. They would provide the supporting layer of a behavioural repertoire, a number of which are going to be implemented and studied in the project. It is left implicit what the exact use is of such a development, without further detailing how the behaviour in the target applications, or even in the two pilots are going to be defined. A clear architectural map is completely absent. To the extent that these transaction primitives are considered to be the main output of the proposed research, and proper comparison with other approaches are not foreseen, a deeper understanding will not likely materialize.

**4. What is your opinion about the research team?**

The reviewer has no knowledge of the proposing team members and has to base opinions on the information given in the application. It can be noted that the team members have not a single refereed journal paper in their list of publications, except perhaps for the description of an API in a rather technical journal, being development rather than scientific research. This does not bode well for the theoretical depth and coverage that a project like the proposed one would preferably feature.

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**5. Do you have remarks about the direction of research as laid out in the proposal? Is the schedule realistic?**

In fact the proposed research has many directions in a wide range of scientific disciplines. The totally different action patterns of the embodied agents in the pilots and applications do not share a cohesive focus, and it may even be assumed that the development of the transaction primitives will remain an illusive target. In that sense the schedule is not particularly realistic.

**6. Are personnel (number and level) and additional equipment, as requested, justified?**

(please note that an OiO is equivalent to a PhD-student). Considering the ambitious targets that are set out in this research project, organization, planning and staffing are insufficient to lead to any appreciable and valid scientific result.

(A comment on equipment is only required in case it represents a relatively large portion of the total amount requested. No comment is necessary on salaries as these are standard in The Netherlands.)

**7. In case a PhD student is requested; how do you judge the research training aspects of the proposal?**

It is to be assumed that in the framework of the development approach taken the educational context will be too narrow, and insufficiently academic.

**8. Please comment on the overall quality and urgency of the research laid out in this proposal.**

From the description in the proposal the impression is gained that the team members have an excellent background in software development, scripting languages and software architectures. This may have given rise to the idea that with these immensely powerful tools hard problems, so far unsuccessfully tackled by scientists from other disciplines, can be handled in a principled and structural manner. In a depressingly low number of cases this may indeed be the case. In general, however, reality does not only have hard challenges for the specialists, but also for them with powerful tools and a refreshing look. It is truly amazing to see, that where there is currently not a single system capable of a dialogue in Natural Language with a human, after some twenty five years of continuous development in that area, this project will be able, without reference to any major publication in this field, to implement such a system, in addition to the planned applications. This is only one of the topics that could be mentioned, there are many more. Where there is an actual urgency, it is for the team members to inform themselves about the theoretical notions, models and implementations that exist in the various fields that they want to explore.

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**9. Do you have special remarks about the proposal?**

Following up on the comments given to question 1.) the lacking level of concreteness in the description poses difficulties in judging to what extent the project can meet its objectives. the proposal mentions embodied agents, which by itself is already a source of confusion, as it is more or less implied that the scenarios will be run in virtual environments. Some researchers understand embodied agents to be real physical entities, and at any rate some reference to FIPA standardization would have been in order. Given the level of specification of the pilots and the applications, it is not possible to draw up a range of conditions that the results have to meet so as to validate the claims that are made. Whether the interface to be developed for the interaction with the agents is indeed usable with respect to accepted ISO normalization can neither be concluded from the description.