ELECTRONIC NEWSLETTER ON
REASONING ABOUT ACTIONS AND CHANGE

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Today

The present Newsletter contains a Call for contributions for *Reference Articles* for standard approaches to actions and change. This is a new kind of article that is motivated by the fact of electronic publication. Details follow below.

Murray Shanahan has submitted his article "A Logical Account of the Common Sense Informatic Situation for a Mobile Robot" to the ETAI. This is the work for which he received the best paper award at the previous ECAI conference. With it, four papers have been submitted to our ETAI area during the past two months and are presently in their open review period. One year after the submission of the first article (by Liberatore) we can observe that things go quite well: papers are coming in, the debate is lively, and an excellent solution has been found for the publication of a printed edition of the ETAI by the Royal Swedish Academy of Sciences.

In addition, the ETAI approach to publishing is attracting a lot of attention from the specialists in electronic publishing, and I have been contacted by several researchers in other disciplines who wish to start something similar.

Behind the scenes, the software tools for managing the newsletter's information base are being improved and extended. The goal is to automate as much as possible of the transformations from submitted articles and debate contributions, to the resulting Transactions, Newsletters, News Journals, and webpage structures. We are not there yet, since some manual interventions continue to be necessary, but we are getting close. Several summer student projects contribute to this effort.

During July and August, the Newsletter will operate with a response time of 2-3 days, and occasionally a week because of the vacation and conference season. Apart from those delays, everything is as usual, and we hope that the discussion will continue also during the summer.

ETAI Publications

Received research articles

The following article has been *received* by the present ETAI area, which means that it will be open for a three-month discussion period, followed by the closed peer-review decision on whether it will be *accepted* by the ETAI. All readers of this Newsletter are invited to participate in the discussion. For access to the article and to the discussion, please use the webpage structure of this Newsletter, or the URL:s specified below.

Questions and comments are sent to the present Newsletter editor, and will be included in forthcoming issues of the Newsletter as well as accumulated to the webpage structure.

A Logical Account of the Common Sense Informatic Situation for a Mobile Robot

by **Murray Shanahan**

Abstract: Any model of the world a robot constructs on the basis of its sensor data is necessarily both incomplete, due to the robot's limited window on the world, and uncertain, due to sensor and motor noise. This paper proposes a logic-based framework in which such models are constructed through an abductive process whereby sensor data is explained by hypothesising the existence, locations, and shapes of objects. Symbols appearing in the resulting explanations acquire meaning through the theory, and yet are grounded by the robot's interaction with the world. The proposed framework draws on existing logic-based formalisms for representing action, continuous change, space, and shape, but a novel solution to the frame problem is employed. Noise is treated as a kind of non-determinism, and is dealt with by a consistency-based form of abduction.

Call for Contributions

Reference articles

It has been observed several times that articles in our area are bound to repeat standard definitions, and that this has several disadvantages: (1) it takes unnecessary effort for author and reader alike, (2) it makes it more difficult to write *short* articles and research notes, since then the proportion between standard stuff and new contribution would go out of proportion. Possibly also, (3), maybe it encourages trivial differences between articles in the same tradition, which again makes reading more difficult.

One reason for this state of affairs is, supposedly, that traditional journals prefer articles to be self-contained, since looking up another article can be fairly cumbersome. In the electronic world, this has changed: that other article may be available at the click of the mouse. This new situation is particularly clear in electronic journals such as the ETAI and the JAIR, but it will apply more and more universally as the electronic editions of other journals become more widespread.

The Editorial Committee for the ETAI area of Reasoning about Actions and Change therefore invites researchers in our area to contribute *reference articles* that *describe the basic definitions and rationale for our main approaches in concise form.* The role of these reference articles ought only be to serve as references that replace the customary introductory definitions; they are not supposed to present new results or to be exhaustive presentations of an approach.

The months of October through December, 1998 are defined as the joint open reviewing period for these articles. Articles should therefore be submitted before September 30; the joint reviewing period will make it possible to compare the presentations of the different articles. Accordingly, accepted articles will be included in the ETAI issue for the third quarter of 1998.

Reviewing criteria. Since the reference articles have another purpose than traditional ones, they will also be reviewed and refereed according to non-standard criteria, namely the following ones:

- Does the article represent a tradition or "approach" where there is already a sufficient volume of work in the field?
- Does the article concisely specify the assumptions, motivations, and notations used in that approach? Does it correctly capture the assumptions, etc. that have been used and are being used? ("Concisely" means that assumptions and motivations should not occupy more than one page).
- Would reading the present article enable one to skip the introductory definitions section of many previously published articles that used the approach?
- Is the article also concise in the sense that it does not contain a lot of material that is unnecessary for the above criteria? (Reference articles don't have to be "journal size". The shorter they are, the better, as long as they cover the necessary material).
- Is the article pedagogical and sufficiently easy to read, but at the same time precise and correct?

In addition, reference articles may contain citations or links to other articles or reports with e.g. the following contents:

- An account of the history of the approach and its relation to alternative approaches.
- Additional about the motivations for the approach.
- Extensions of the approach and variants of the formalism

Ideally, we hope to have one such article for classical sitcalc, one for cal-A type languages, one for the modern event calculus, etc. We wish to avoid having several reference articles for the same approach.

Besides for replacing introductory sections of forthcoming articles (published in the ETAI or elsewhere), these reference articles will also have other uses. In particular, they will serve as a natural basis for next-level articles that *compare* alternative approaches wrt expressiveness, range of applicability, etc.

This newsletter is issued whenever there is new news, and is sent by automatic E-mail and without charge to a list of subscribers, in plaintext format. The present postscript issue is a bona fide rendering of the same information in alternative typography. Instruction for contributors and other additional information is found at the following URL:

`http://www.ida.liu.se/ext/etai/actions/njl/`