ELECTRONIC NEWSLETTER ON
REASONING ABOUT ACTIONS AND CHANGE

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Today

Today we have the pleasure to announce that the ETAI submitted article by Chitta Baral and Son Cao Tran have been accepted following the recommendations of both the referees. The referee reports follow below.

ETAI Publications

Discussion about received articles

Relating Theories of Actions and Reactive Control

by **Chitta Baral and Son Cao Tran**

Comment from: Anonymous Referee 1

1. Are the results of the article, as specified in the summary, of significant interest for researchers in our area?

Yes.

2. Does the full text substantiate the claims made in the summary?

Yes.

3. Is the text intelligible and concise?

Yes. (Additional comments concerning minor corrections are being given to the authors).

4. Do you know of any previous publication of the same result?

No.

5. Are there any other considerations that may affect the decision?

No.

Comment from: Anonymous Referee 2

This paper concerns an important topic, namely the connection between action theories and control. The paper is correct and well-written and I think that the paper should be accepted. However, I have one objection to make.

If we instead of "action theory" use the term "open-loop specification" and instead of "reactive control" use "control law" the results of the paper concern the topic of verification and synthesis of control laws w.r.t. to some specification. In this sense the results are not at all original, since these research problems have generated an abundance of work in Control Theory (more precisely, in work on "Discrete Event Dynamic Systems", DEDS). The authors appear to be completely unaware of this work and on a number of points they re-invent the wheel (e.g. the criterion for "correctness of maintenance control modules" corresponds exactly to a particular flavour of stability criteria, see [3]). There is not one single reference to the DEDS (or Hybrid Systems) literature in the bibliography.

In other words, I observe that a large body of work in a similar problem area is neglected, in particular since it is is based on similar definitions and concepts (that is, verification and synthesis of control laws from specifications). It would have been an even better paper if a comparison to this work had been included.

On the other hand, the *usage* of these definitions and concepts is done in an original way by the authors. The main issues addressed by this paper have not (to the best of my knowledge) been studied by the DEDS or Hybrid Systems communities, for example modeling and control with sensing actions and conditional plans.

It is important to incorporate the achievements in Reasoning about Action and Change with control, but I think that it would be unfortunate if achievements in Control Theory are neglected while doing so.

Examples from the literature of control law synthesis and verification for discrete and hybrid systems can be found in [1, 2, 5], and various definitions of stability in [3, 4].

REFERENCES

[1] Heymann, Lin and Meyer, Controller Synthesis for a class of hybrid systems subject to configuration-based safety constraints, LNCS 1201, 1997.

[2] Kumar and Garg, Modeling and Control of Logical Discrete Event Systems, Kluwer Academic Publishers, 1995.

[3] Ozveren, Willsky and Antsaklis, Stability and Stabilizability of Discrete Event Dynamic Systems, Journal of the ACM, 1991

[4] Passino and Burgess, Stability analysis of discrete event systems, John Wiley, 1998.

[5] Zhang and Macworth, Synthesis of hybrid constraint-based controllers, LNCS 999, 1995.

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