

Do-Form: Enabling Domain Experts to use Formalised Reasoning  
<http://cs.bham.ac.uk/research/projects/formare/events/aisb2013>

#### CALL FOR CONTRIBUTIONS

Symposium at the annual convention of the  
AISB (Society for the Study of  
Artificial Intelligence and Simulation of Behaviour;  
<http://www.aisb.org.uk>)  
University of Exeter  
2-5 April 2013  
<http://emps.exeter.ac.uk/computer-science/research/aisb/>

SUBMISSION DEADLINE: 14 January

PRE-SUBMISSION DEADLINE (for initial problem and tool descriptions,  
non-binding): 10 December

This symposium is motivated by the long-term VISION of making information systems dependable. In the past even mis-represented units of measurements caused fatal ENGINEERING disasters. In ECONOMICS, the subtlety of issues involved in good auction design may have led to low revenues in auctions of public goods such as the 3G radio spectra. Similarly, banks' value-at-risk (VaR) models - the leading method of financial risk measurement - are too large and change too quickly to be thoroughly vetted by hand, the current state of the art; in the London Whale incident of 2012, JP Morgan claimed that its exposures were \$67mn under one of its VaR models, and \$129 under another one. Verifying a model's properties requires formally specifying them; for VaR models, any work would have to start with this most basic step, as regulators' current desiderata are subjective and ambiguous.

We believe that these problems can be addressed by representing the knowledge underlying such models and mechanisms in a formal, explicit, machine-verifiable way. Contemporary computer science offers a wide choice of knowledge representation languages well supported by verification tools. Such tools have been successfully applied, e.g., for verifying software that controls commuter rail or payment systems (cf. the symposium homepage for further background). Still, DOMAIN EXPERTS without a strong computer science background find it challenging to choose the right tools and to use them. This symposium aims at investigating ways to support them. Some problems can be addressed now, others will bring new challenges to computer science.

TOPICS of interest include:

\* for DOMAIN EXPERTS: what problems in application domains could benefit

from better verification and knowledge management facilities?  
Possible fields include:

\* Example 1 (economics):  
auctions, VaR, trading algorithms, market design

\* Example 2 (engineering):  
system interoperability, manufacturing processes, product  
classification

\* for COMPUTER SCIENTISTS: how to provide the right knowledge  
management  
and verification tools to domain experts without a computer science  
background?

- \* wikis and blogs for informal, semantic, semiformal, and formal  
mathematical knowledge;
- \* general techniques and tools for online collaborative mathematics;
- \* tools for collaboratively producing, presenting, publishing, and  
interacting with online mathematics;
- \* automation and computer-human interaction aspects of mathematical  
wikis;
- \* ontologies and knowledge bases designed to support knowledge  
management and verification in application domains;
- \* practical experiences, usability aspects, feasibility studies;
- \* evaluation of existing tools and experiments;
- \* requirements, user scenarios and goals.

THE SYMPOSIUM is designed to bring domain experts and formalisers into  
close and fruitful contact with each other: domain experts will be able  
to  
present their fields and problems to formalisers; formalisers will be  
exposed to new and challenging problem areas. We will combine talks and  
hands-on sessions to ensure close interaction among participants from  
both  
sides. We will start with an invited talk given by an expert from  
economics (to be determined), on the need for verifiable models in this  
domain and beyond.

#### SUBMISSIONS (TWO STAGES)

We run a two-stage submission process:

Stage 1: PROBLEM & TOOL ("NAIL & HAMMER") DESCRIPTIONS  
to be reviewed and matched with each other

Stage 2: REGULAR EXTENDED ABSTRACTS  
normal conference-like peer review

Accepted submissions from both stages will be included in the symposium  
proceedings (see below).

In Stage 1 (by 10 December) we solicit ...

- \* from DOMAIN EXPERTS: descriptions of canonical models and problems in  
their domain that might benefit from better verification and knowledge  
management facilities. Descriptions should focus on aspects of these  
models that domain users find particularly problematic, and suspect  
might be aided by formalisation tools
- \* from COMPUTER SCIENTISTS: descriptions of formalisation, verification  
and knowledge management tools, with an emphasis on how they could be  
applied in a concrete real-world setting, or tailored to such  
application

domains.

Stage 1 submissions should have 2 to 4 pages and may be summaries of earlier publications on relevant problems and tools, focused to a target audience of computer scientists or domain experts, respectively.

The symposium chairs, assisted by the PC members, will review and initially publish commented versions of the Stage 1 submissions on the symposium homepage, to provide orientation for Stage 2. Should matching problems and tools be identified, we will notify the respective authors.

In Stage 2 (by 14 January) we solicit regular submissions on any of the TOPICS outlined initially. We prefer submissions that specifically address topics identified in Stage 1; for a tool description paper, this could, e.g., be done by motivating the tool with a Stage 1 problem, and sketching how the tool could, or will, be applied in this domain. Each submission will be refereed by three PC members on average. Submissions will be judged based on the PC's views of the likelihood of contributing to a better matching of hammers (formalisation and verification tools) to nails (domain problems).

At this stage we accept PDF submissions in any layout but count 1200 words as one page for fair comparison. We invite research and position papers, as well as tool and system descriptions, from 3 to 10 pages. Besides PDFs we invite the submission of formalised knowledge representations with human-readable annotations.

To submit a paper, please go to the EasyChair Do-Form page (<http://www.easychair.org/conferences/?conf=doform2013>) and follow the instructions there.

#### FINAL VERSIONS

Final versions should be prepared in LaTeX according to the AISB formatting guidelines linked from the symposium homepage. For the final version, non-PDF submissions should be accompanied by a PDF abstract of 2 to 4 pages. Proceedings will be made available to the convention delegates in time for the symposium, and subsequently be published by the AISB, with an ISBN.

#### IMPORTANT DATES

- \* Pre-Submission (Stage 1): 10 December 2012
- \* Stage 1 Submissions and Comments online: 14 December 2012
- \* Submission (Stage 2): 14 January 2013
- \* Notification: 11 February 2013
- \* Final versions due: 4 March 2013
- \* Symposium: 2-5 April 2013 (days to be fixed)

PROGRAMME COMMITTEE (to be populated with further domain experts)

1. Rob Arthan, Lemma 1, Reading, UK
2. James Davenport, University of Bath, UK
3. Michael Grüninger, University of Toronto, Canada
4. Manfred Kerber, University of Birmingham, UK (co-chair)
5. Michael Kohlhase, Jacobs University Bremen, Germany

6. Christoph Lange, University of Birmingham, UK (co-chair)
7. Till Mossakowski, University of Bremen, Germany
8. Colin Rowat, University of Birmingham, UK (co-chair)
9. Makarius Wenzel, University of Paris Sud, France
10. Wolfgang Windsteiger, RISC / JKU Linz, Austria