

The TRain Workshop @ SEFM 2005, Koblenz, Germany

September 5–6, 2005

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1 The TRain Grand Challenge

Before safety-critical software (and in general any software) can be designed, requirements must be formulated; before requirements can be formulated, the application domain must be understood. All other engineering branches build on theories of their own application domains: Newtonian mechanics provides the basis for automotive engineers; aerodynamics for aircraft designers; and hydrodynamics for ship designers. In the same way, software engineers developing software for rail applications must build on a theory of the railway domain. But there is no such theory.

TRain is a loosely knit group of international researchers and technologists who are interested in establishing a theory for transportation domains, specifically including railways. The scope of the workshop includes diverse models of railway facets, from rail nets and their control, to traffic and its control, from planning nets, timetables, train maintenance, and rostering to their monitoring. The goal of the workshop is to identify about five main topics to which diverse groups could apply their tools (ASM, B, CafeOBJ, CASL, Circus, CommUnity,

CSP, CTP (Communicating Transaction Processes), Duration Calculi, Message and Live Sequence Charts, Petri Nets, RAISE, Statecharts, TLA+, VDM, Z, etc.) and to identify core theory elements.

2 Submissions

The TRain effort is in the process of encircling how to tackle its objectives and by which means. The lists of items following reflect a first attempt. Thus we welcome submissions in the following areas, but are open to submissions that contribute to our delineation process.

2.1 Reports: Theories and Tools

- descriptions of attempts to formalise the railway domain
- developments based on domain models
- tools for analysing these descriptions
- capabilities and limitations
- comparisons with other tools
- plans for extensions
- integration of tools
- challenges for new and existing theories and tools

2.2 Reports: Applications

- experiences of case studies in the railway domain
- scalability

2.3 Positions: TRain Issues

- theoretical issues
- levels of assurance
- interdisciplinary research
- suitable exemplars
- future technologies
- annotated bibliographies
- technical problems
- obstacles

2.4 By When, to Whom and How to Submit?

- Deadline: August 1, 2005
- Send, in triplicate, electronically:
 - Dines Bjørner, dines@bjorner.biz
 - Prof. Jim Woodcock, jim@cs.york.ac.uk
 - Martin Penicka, mp@fd.cvut.cz
- Send postscript or pdf format document electronically — no page limitation, within reason

3 TRain Workshop Organisers

- Prof. Dines Bjørner, Denmark
dines@bjorner.biz
- Prof. Jim Woodcock, University of York, UK
jim@cs.york.ac.uk

4 The TRain Workshop @ SEFM 2005

Plans for the one and a half day TRain workshop @ SEFM2005 are, loosely, as follows:

- Monday 5 September 2005: Afternoon
 - 2:00-2:30 pm** Opening
 - 2:30-3:00 pm** Paper 1
 - 3:00-3:15 pm** Refreshment Break
 - 3:15-5:15 pm** Papers 2-5
- Tuesday 6 September 2005: Morning
 - 9:30-10:30 am** Papers 6-7
- Tuesday 6 September 2005: Afternoon
 - 10:30-10:45 am** Refreshment Break
 - 10:45-12:15 am** Papers 8-10
 - 2:00-3:00 pm** Papers 11-12
 - 3:00-3:15 pm** Refreshment Break
 - 3:15-5:00 pm** Panel Discussion:
How to Organise TRain Scientifically ?

5 The TRain Series of Workshops

The TRain @ SEFM 2005 is planned to be the third TRain Workshop. The second TRain Workshop takes place July 19 @ FM05. The first took place @ IFIP WCC 2004 in Toulouse, August 26, 2004. TRain @ FM05: http://www.csr.ncl.ac.uk/fm05/main_workshops.php? is a one day event. TRain @ SEFM 2005 is a slightly longer event. We may make allowance for duplicate presentation of material at both workshops.

6 Please Study and Join the TRain Grand Challenge

- Click on TRain: <http://www.railwaydomain.org>

7 Publication

We plan to publish the proceedings, to include selected papers, and to base a survey article on the presented papers for both workshops and workshop discussion at TRain @ SEFM 2005. Publisher, editors and date yet to be decided and information given by TRain @ SEFM 2005.