



FACS FACTS

The Newsletter of the BCS Special Interest Group in

Formal Aspects of Computing Science.

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Editorial

The FACS newsletter welcomes short articles (not full-blown papers), especially on industrial niche applications. Send any contributions to Tim Denvir, t-denvir@dircon.co.uk

Some FACS news.

Just to remind you, the subscription arrangement with EATCS, whereby members' subscriptions to EATCS can be paid with their FACS subscriptions, is terminated. EATCS subscriptions can be paid directly by credit card and so there is no longer any financial advantage in bundling the two together. The arrangement was administratively awkward to implement. So those who are members of EATCS need to watch out for an EATCS subscription request form when they receive their EATCS bulletin.

Work is in hand to organise a FACS event in December 2001, possibly at Kings College London or the Royal Society. A number of themes are being considered, one of them being "Applicable Formal Methods", which was the subtitle of FME 2001.

The FACS web page is being revised.

The first six issues of Formal Aspects of Computing Journal in its new Letter 8 sized blue and black format have now appeared. Volume 12 number 4 contains, among other papers, a set of eight solutions to the Cash-Point ATM 'Problem'. Number 6 is a special issue on X-Machines. (S. Eilenberg introduced X-Machines in 1974 as a mathematical framework for examining the relationships between languages and Automata. Finite state machines, push-down automata and Turing machines are all examples of X-machines.) There is soon to appear another special issue containing five papers featuring extensions to work on integrating formal methods, reported on in IFM99.

FME

FME 2002, "Formal Methods: Getting IT Right" will be held 20-24 July 2002 in conjunction with the third Federated Logic Conference (FLoC'02) in Copenhagen, Denmark. The call for papers is announced below. See <http://floc02.diku.dk/FME/> for full details.

Formal Methods in the Real World

Below we report on four interesting industrial applications under "Formal Methods in the Real World". Formal methods have often been considered useful in safety critical systems, but business critical systems, where failure can cause catastrophic loss of property or revenue, are just as applicable a domain. Several of the applications reported here are in that category. Your editor found most intriguing the application of VDM to the Dutch flower auction, which turns out to be highly business critical.

We are grateful to IFAD for their permission to report on these applications. More details of them and other applications can be found in IFAD's Toolbox Newsletter, accessible from <http://www.ifad.dk/>. Meanwhile, any other companies and institutions that have interesting applications to report, don't be shy, please let the editor know! I am willing to make extracts and paraphrase from in-house reports and other material if you do not have time to do so yourself.

Books, Journals

Book Announcements

- A Model-Based Approach with Matrix-Geometric Methods - by Alexander Ost. 290 pages. Springer Verlag, Berlin, March 2001, ISBN 3-540-41438-X. <http://www-lvs.informatik.rwth-aachen.de/~arost/book/>
- "Systems and Software Verification. Model-Checking Techniques and Tools." B. Berard, M. Bidoit, A. Finkel, F. Laroussinie, A. Petit, L. Petrucci and Ph. Schnoebelen Springer-Verlag, ISBN 3-540-41523-8. http://www.springer.de/cgi-bin/search_book.pl?isbn=3-540-41523-8

- Proceedings of the 2nd International Conference on Applications of Concurrency to System Design 25-29th June 2001, Newcastle upon Tyne, UK. IEEE Computer Society Press, Softcover, ISBN 0-7695-1071-X, 255 pp. <http://www.cs.ncl.ac.uk/conferences/2001/acsd/proc-order.html>
- Now the book "Real-Time Systems: Specification, Verification and Analysis" Edited by Prof. Mathai Joseph, which was published Prentice Hall, is available free of charge at www.pune.tcs.co.in: Link from the home page www.tcs.com: Link from the home page www.tcs-america.com: Link from <http://www.tcs-america.com/resources.html>
- Software Reliability Methods, Doron Peled, Bell Labs/Lucent Technologies, Murray Hill, NJ, USA, Springer-Verlag Price: \$59.95 ISBN: 0-387-95106-7
- The proceedings of the International Workshop on Discrete-Event System Design, DESDes'01 are available from the web site: <http://www.iie.pz.zgora.pl/desdes01>
- Supervision of Petri Nets by Geert Stremersch (University of Ghent, Belgium). Published in the Kluwer International Series on Discrete Event Dynamic Systems (ISBN 0-7923-7486-X). Book website: <http://systems.rug.ac.be/~geert/book.html>

Calls for Journal Papers

Journal	Submission date	Details
		URL
Automated Software Engineering	2 nd November 2001 (abstracts)	Special Issue on Automated Verification of Infinite-State Systems
		http://www.wkap.nl/journalhome.htm/0928-8910 Email: ramesh@itd.nrl.navy.mil
Journal of Logic and Algebraic Programming	September 30, 2001	Special Issue on the PI-CALCULUS
		http://www.docs.uu.se/jlap01/

Some Forthcoming Events

These notices are divided between calls for papers, calls for participation and calls for workshops, affiliated events etc. Note that calls for taking part in exhibitions are often included with calls for participation.

Calls for Papers

Note the call for papers to FME 2002 below. Full papers should be submitted in Postscript or PDF format by e-mail to reach the Program Co-chairs (Lars-Henrik Eriksson, lhc@L4i.se, Peter Lindsay, Peter.Lindsay@svrc.uq.edu.au) by 15 January 2002. See <http://floc02.diku.dk/FME/>

Title	Submission date	Details
		URL
AAAI 2002	October 5, 2001	Logic-Based Program Synthesis: State-of-the-Art & Future Trends, Spring Symposium, March 25-27, 2002, Stanford University, Stanford, CA. http://www.aaai.org/Symposia/Spring/2002/sss-02.html
ACL2 Workshop (ETAPS 2002)		To be held April 8-9, 2002, in Grenoble, France, in conjunction with ETAPS 2002. http://www.cs.utexas.edu/users/moore/acl2/workshop-2002
CONCUR 2002	25 March, 2002	13th International Conference on Concurrency Theory, Brno, Czech Republic, August 20-23, 2002 http://www.fi.muni.cz/concur02/
ETAPS 2002		April, 6-14, 2002 Grenoble, France http://www-etaps.imag.fr/
FME 2002	15 January 2002	Formal Methods Europe: "Formal Methods: Getting IT Right". International Symposium and Tutorials, 20-24 July 2002, held in conjunction with the third Federated Logic Conference (FLoC'02) in Copenhagen, Denmark. http://floc02.diku.dk/FME/
FMOODS'2002	1 September 2001	Fifth IFIP International Conference on Formal Methods for Open Object-based Distributed Systems 20-22 March 2002, University of Twente, the Netherlands http://trese.cs.utwente.nl/fmoods2002/
FMPPTA'2002	October 29, 2001	7th International Workshop on Formal Methods for Parallel Programming: Theory and Applications, in conjunction with the International Parallel & Distributed Processing Symposium IPDPS'2002, April 15-19, 2002, Marriott Marina, Fort Lauderdale, Florida http://www.cs.unh.edu/~charpov/FMPPTA
ICATPN		23 rd International Conference on the Application and Theory of Petri Nets, the University of South Australia in Adelaide, Australia http://www.daimi.au.dk/PetriNets/meetings/pn2002/
IFM2002	30th November 2001	Third International Conference on Integrated Formal Methods, May 15-18, 2002, Turku, Finland. Jonathan Bowen jpbowen@BTINTERNET.COM
INT 2002	November 18, 2001	Second International Workshop on Integration of Specification Techniques for Applications in Engineering, Grenoble, France, April 6 and 7, 2002 http://tfs.cs.tu-berlin.de/~mgr/int02/index.html

Title	Submission date	Details
		URL
MPC 2002 (WCGP '02)	6th January, 2002	6th International Conference on Mathematics of Program Construction. 8--10 July, 2002, Dagstuhl, Germany http://www.cs.ukc.ac.uk/conf/mpc2002/
M4M-1	October 12, 2001	Methods for Modalities (M4M): Workshop on proof tools and reasoning methods for modal logic. Institute for Logic, Language and Computation, University of Amsterdam, November 29-30, 2001 www.science.uva.nl/~m4m
PDMC 2002 (CONCUR'2002)	May 25, 2002	Parallel and Distributed Model Checking, August 19, 2002, Brno, Czech Republic, Workshop affiliated to CONCUR'2002, 20 - 23 August 2002 http://www.fi.muni.cz/concur2002/PDMC
SFEDL (ETAPS2002)	19 October 2001	Satellite Workshop on Semantic Foundations of Engineering Design Languages, Grenoble, France, 14 April 2002 http://www.dcs.shef.ac.uk/~sfedl
TACAS'2002 (ETAPS'2002)		Eighth International Conference on Tools and Algorithms for the construction and Analysis of Systems, April 6 - 14, 2002, Grenoble, France http://www.dcs.ed.ac.uk/tacas2002/
TCS 2002	December 3, 2001	2nd IFIP International Conference on Theoretical Computer Science Montreal, August 25-30, 2002, co-sponsored by EATCS and ACM Sigact http://www.scs.carleton.ca/~santoro/TCS2002/indexTCS2002.html
VISS 2002 (ETAPS)	December 15, 2001	ETAPS 2002 Satellite Workshop on Validation and Implementation of Scenario-Based Specifications (VISS), Grenoble, France, 6-7 April 2002 http://www.liafa.jussieu.fr/~anca/VISS02.html
WITS '02	21 September 2001	Workshop on Issues in the Theory of Security , Portland Oregon, USA, January 14-15 2002, co-located with POPL '02, the 29th Annual ACM Symposium on Principles of Programming Languages (January 16-18 2002) http://www.dsi.unive.it/IFIPWG1_7/wits2002.html http://www.cse.ogi.edu/PacSoft/conf/popl/index.htm
WODES'02	22 January, 2002	6th International Workshop on Discrete Event Systems, Zaragoza, Spain, 2-4 October, 2002 http://www.cps.unizar.es/deps/DIIS/WODES2002/ Email: wodes02@posta.unizar.es

Calls for Participation

Where no registration date is given, this is either not clear from the announcement to hand, or on site registration is available.

Title	Registration date	Details
		URL
Formalware Engineering		Formal Methods for Engineering Software, Udine, September 24-28, 2001
		http://www.cism.it/c2001/c07/index.htm
MKM 2001		First International Workshop on Mathematical Knowledge Management & OpenMath Workshop, RISC, A-4232 Schloss Hagenberg, September 24-26, 2001
		http://www.risc.uni-linz.ac.at/institute/conferences/MKM2001/
TACS2001		International Symposium on Theoretical Aspects of Computer Software, Tohoku University, Sendai, Japan, October 28-31, 2001
		http://tacs2001.ito.ecei.tohoku.ac.jp/tacs2001/
Petri Net Technologies		2nd International Colloquium on Petri Net Technologies for Modelling Communication Based Systems, Berlin, Germany, September, 14th and 15th, 2001
		pnt-leitung@informatik.hu-berlin.de http://www.informatik.hu-berlin.de/PNT/

Call for Tool Demonstrations and Workshops

Title	Submission date	Details
		URL
ETAPS 2003	November 1, 2001	ETAPS 2003 will take place in Warsaw, Poland, from 5 to 13 April 2003. Call for satellite event proposals.
		http://www.mimuw.edu.pl/etaps03/
CADE-18	October 12, 2001	The 18th International Conference on Automated Deduction, July 25 - August 1 2002 (workshops/tutorials), Copenhagen, Denmark
		http://floc02.diku.dk/CADE

Some New/updated Products

Name	Details	URL
XML tool for Z	XML/XSL web browsing environment tool (ZML) for the Z family (Z/Object-Z/TCOZ) languages.	http://nt-appn.comp.nus.edu.sg/fm/zml
IFAD VDM-SL Toolbox version 3.6 and VDM++ Toolbox version 6.6	Improved VDM debuggers, new Corba-based Application Programmers Interface for VDM Tools, VDM++ to Java code generator, enhancements to Rose-VDM++ Link	http://www.ifad.dk/Products/vdmttools.htm

Some Posts

Post	Contact
The University of Birmingham school of Computer Science: Postdoctoral Research Fellow in model checking application. Ref. S35522/01.	www.cs.bham.ac.uk/~mdr/fc www.bham.ac.uk/personnel/app.htm
Safety Analysis of Specifications. The department of Software Techniques and Programming Languages at the University of Augsburg (Germany) offers a full time position (BAT II/a) as a Research Scientist with the opportunity to earn a doctorate in FORMOSA project (two years).	reif@informatik.uni-augsburg.de http://www.informatik.uni-augsburg.de/swt/formosa
The Formal Methods and Tools (FMT) group at the University of Twente seeking applications for a Post-Doc Researcher and a PhD student.	brinksma@cs.utwente.nl http://fmt.cs.utwente.nl/HaaST/
Eindhoven University of Technology offers a Postdoc within the department of Information and Technology and research institute BETA. We seek a candidate to contribute to our research on "flexible workflow management systems". Ref. 39 294.	w.m.p.v.d.aalst@tm.tue.nl www.tm.tue.nl/it/
ETH Zürich has an open position for doing PhD research in Formal Methods. Though German is the main teaching language, it is not a prerequisite for the position.	http://www.inf.ethz.ch/personal/biere

Post	Contact
<p>Research Associate Automated development/verification of probabilistic programs (Ref 757), School of Computer Science and Engineering, University of New South Wales, Sydney, Australia.</p>	<p>http://www.cse.unsw.edu.au/~carrollm/positions</p>
<p>The University of Birmingham School of Computer Science: Research studentships in Computer Science and Artificial Intelligence</p>	<p>http://www.cs.bham.ac.uk/system/autogen/staff.html M.Z.Kwiatkowska@cs.bham.ac.uk</p>
<p>Department of Computer Science, School of Computing and Mathematical Sciences, University of Waikato, New Zealand: 200573 lecturer(s) in computer science, 200574 lecturer in computer systems and networks, 200575 visiting positions in computer science</p>	<p>http://www.waikato.ac.nz hrm@waikato.ac.nz</p>
<p>School of Engineering, Murdoch University, Western Australia. Research Fellow (Level A). Petri net based methodologies for scheduling of batch and mixed batch/continuous process plants. Three years.</p>	<p>parisa@eng.murdoch.edu.au</p>
<p>Post-doc scholarship at the University of Lisbon. The Laboratory for Computational Models and Architectures (LabMAC) of the University of Lisbon in Portugal has a post-doc scholarship for 2 years.</p>	<p>http://www.fiadeiro.org/jose/papers</p>
<p>A Postdoctoral Research Fellow to work on an EPSRC-funded project within the Software Technology Research Laboratory, De Montfort University. The project is to establish theoretical underpinning for Component-based development and their use in bridging the gap between business objectives/goals and its supporting IT infrastructure.</p>	<p>Email: Prof. H Zedan zedan@dmu.ac.uk</p>
<p>University of Southampton Department of Electronics and Computer Science Research Fellows in Computer Science R/609. The projects are 'Automated Validation of Business Critical Systems' and 'Reasoning about Information Consistency'.</p>	<p>http://www.ecs.soton.ac.uk/~ph/vacancies/</p>

Post	Contact
<p>Research Associates Post: Formal Verification within High Integrity Software Development Dependable Systems Group, Department of Computing & Electrical Engineering, Heriot-Watt University, Edinburgh.</p>	<p>Andrew Ireland air@cee.hw.ac.uk</p>
<p>Universite Libre de Bruxelles Faculte des Sciences Departement d'Informatique. We invite applications for 3 full-time faculty positions at the level of tenure-track "Charge de Cours" (first professorial level) to begin from October, 2001.</p>	<p>http://www.ulb.ac.be/di/</p>
<p>Department of Electronics and Computer Science University of Southampton, Lecturer in Formal Methods (Ref R689)</p>	<p>http://www.ccs.soton.ac.uk/~mjb/ Professor Michael Butler, mjb@ecs.soton.ac.uk</p>
<p>The Database group of the Department of Computer Science of the University of Twente (Enschede, Netherlands) is seeking a PhD candidate for contributing to the research for a mathematical theory for (and practical realisation of) object algebras in databases.</p>	<p>http://www.cs.utwente.nl/~fokkinga/AIO-advertisement.html</p>
<p>There are several positions (Full Professor, Associate Professor, and PhD Fellowship) in Formal Methods at University of Oslo, Department of Informatics, Norway.</p>	<p>http://www.ifi.uio.no/~pma/stillinger/positions.shtml</p>
<p>Post-doctoral position, LSR Laboratory IMAG, Grenoble France to carry out research within a RNTL ("Réseau National des Technologies du Logiciel" - "National Network on Software Technologies") project, set up by the French Ministry of Industry.</p>	<p>Email: Didier Bert Didier.Bert@imag.fr</p>
<p>A PhD research studentship on an project funded by INRIA and France Telecom : "Analysis and realization of requirements expressed by conjunctions of timed message sequence charts" The 36 months studentship will be located at IRISA, Rennes, France and is expected to start on 1st October 2001.</p>	<p>http://www.irisa.fr/pampa/perso/bcaillau/phd-studentship.html</p>

FME News

FME 2002 will be organised as part of the three-yearly Federation of Logic Conferences (FloC). FloC comprises CAVE, FME, LICS, CAD, ICLP, RTA and TABLEAUX. It is a two-week event during which FME will take place in the first week, in Copenhagen. The call for papers is announced in this newsletter and elsewhere. There is a proposal to host the subsequent FME 2003/4 in Italy.

BCS News

The BCS has launched a new email bulletin <http://www.bcs.org/ebulletin/>. Several issues of this have been produced and are commendably succinct. So far, no items of obvious interest to FACS members have appeared.

The BCS website has also been revamped and is to become more central to the society's activities <http://www.bcs.org/cbulletin/010704/web>. Watch this space.

Formal Methods in the Real World: Industrial FM Projects

I am grateful to IFAD for their kind permission to extract all the following from issue 5 of The Toolbox Newsletter. More details can be found in the Toolbox Newsletter, along with several other accounts of industrial projects and user applications (<http://www.ifad.dk/>)

Other companies and organisations who have interesting formal methods applications to report, please send me details! I am willing to paraphrase and extract from longer material if you do not have time to cast it in a suitable form.

Japanese Tax Rules

Japan Future Information Technology & Systems (JFITS) is an online information service company in Japan. JFITS is developing a back office system for stock companies using object oriented technologies. VDM++ is being used for analysing and designing a subsystem which processes the application of the tax exemption for elderly or handicapped people. The tax exemption rules are very complicated and a specification in natural language is likely to contain many mistakes and ambiguous descriptions. Unambiguous descriptions in VDM++ are expected to improve the precision in ensuring that the tax rules are followed.

Contact: Shin Sahara <Shin.Sahara@jfits.co.jp>

VDM for Air Traffic Control

About two years ago the Software Technology institute at Graz University of Technology started a cooperation with the Austrian company *Frequentis* (www.frequentis.com) in Vienna. Frequentis's main business is air traffic control, providing voice and data communication systems for safely routing aircraft.

In a new project in this collaboration, 140 functional requirements were chosen out of almost 3000, all formulated in natural language, and reformulated in VDM. This formalisation uncovered 108 open issues leading to 33 changes in the requirements document, and 16 errors in the acceptance test-cases. The customer, Austro-Control, particularly appreciated the increased rate of early questions for clarification. Once again formalization plays a most important role in the validation process.

Contact: Bernhard Aichernig <aichernig@ist.tu-graz.ac.at>

Dutch Flower Auction

Chess (<http://www.chess.nl>) has been involved in a large project to re-engineer the auction clocks of the Flower Auction at Aalsmeer, in the Netherlands. Flower Auction Aalsmeer (VBA) is the largest covered marketplace in the world, occupying more than 700,000 square metres. Every day, millions of fresh cut flowers and plants from all over the world are auctioned on one of the fourteen auction clocks. Some 50,000 transactions are made every day, generating an annual turnover of some 1.5 billion Euro. It can be safely assumed that the auction process is the most critical business process of the flower auction. If the clocks fail for one day, a staggering 750 football fields full of produce can be thrown away. More information on the flower auction can be found at <http://www.vba.com/english/index.html> and also <http://www.vba.com/english/veilen/index.html> where the auction process is explained in more detail.

A re-engineering project is under way, enabling, among other features, remote purchase at the auctions. Chess selected IFAD's VDMTools® combined with Rational Rose for the development of the software for the interface between the old and new infrastructure. Hidden functionality of the interface was a substantial issue and the choice of VDM++ and UML was well suited to this type of application. A paper was presented at the VDM user group meeting at FME99.

Contact: Marcel Verhoef Marcel.Verhoef@chess.nl

Banknote Processing System

GAO mbH develops a variety of banknote processing systems. GAO is currently using VDM-SL to specify and develop a new banknote sorting compiler, and a 3-D GUI with database support as a user interface to the compiler. VDMTools® is being used as the primary specification tooling order to raise confidence that the project design is feasible.

Contact: Paul Smith Smith@gao-munich.com

FACS Coordinates

FACS Officers

Chairman	To be filled	
Treasurer	Jawed Siddiqi	J.I.Siddiqi@shu.ac.uk
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Newsletter Contributions

Send them by email in an attached file in MS Word or Rich Text Format to Tim Denvir, coordinates above. Short items such as news of a new product can be embedded directly in the message if you prefer.