FACS FACTS

The Newsletter of the BCS Specialist Group in

Formal Aspects of Computing Science

Issue 2004-1 March 2004 ISSN 0950-1231

Contents

Editorial

Welcome to the first issue of *FACS FACTS* in 2004. We hope there is something of interest to everyone. In particular, there are a number of reports on meetings supported by FACS that we hope will be worthwhile both for those who could not attend and for those who were there. Please remember that these are personal reports, but corrections on errors of fact in these reports or any part of this newsletter are always welcome.

Readers of *FACS FACTS* may be interested in an article on formal methods by the independent journalist Richard Sharpe in the 8 January 2004 edition of *Computing*, entitled "*Formal methods start to add up again*". Hopefully this sympathetic article, a two-page spread in the *Déjà Vu* series, has helped to raise the profile of formal methods a little, and even FACS gets a brief mention. The article can be found online under http://www.computing.co.uk/Features/1151896.

The FACS AGM is planned for the afternoon of Friday 23 April 2004, again in the Boardroom of the Technopark building at London South Bank University. Further information will be issued on the FACS mailing list. We look forward to seeing you there if you make it.

***Jonathan Bowen*, Chair BCS-FACS**

FACS FACTS is the newsletter of the BCS *Formal Aspects of Computing Science* (FACS) Specialist Group. It publishes reports on events organised or attended by the group, and announcements of relevant conferences, books, etc. Previously it has also been known as *FACS EUROPE* when it was published in association with the Formal Methods Europe (FME) organisation. The FACS newsletter welcomes short articles on formal methods activities, books, workshop reports, etc. Please send any contributions to Kevin Lano (email kcl@dcs.kcl.ac.uk) in Word or text format.

BCS-FACS Sponsored Events

Paul Boca

Since the publication of the previous newsletter (Issue 2003-01, July 2003), FACS has supported three conferences/workshops:

- **IFL/TFP 2003, Edinburgh, Scotland, 8-10 September 2003**
  Website: http://www.macs.hw.ac.uk/~ifl03/
  http://homepages.inf.ed.ac.uk/stg/workshops/TFP/
  Support: £250 towards student bursaries. The money was used to reduce the attendance cost for postgraduate students.

- **FM 2003, Pisa, Italy, 8-14 September 2003**
  Website: http://fme03.isti.cnr.it/
  Support: £250 towards student bursaries. The money allowed five postgraduate students (4 from the UK and 1 from Singapore) to each attend a tutorial.

- **TFM 2003, Oxford, 12 December 2003**
  Website: http://wwwcms.brookes.ac.uk/tfm2003/
  Support: Moral support and publicity. FACS arranged for this event to be publicised in Computing and in the September 2003 issue of The Computer Bulletin. FACS members received a small discount on the registration fee.

Reports on these events can be found in the next section of this issue of *FACS FACTS*.

FACS has begun drawing up a list of events to sponsor in 2004/5:

- **IFM 2004, Canterbury, 5-7 April 2004**
  Website: http://www.cs.kent.ac.uk/ifm2004
  Support: Best paper and best student presentation prizes.

- **BCTCS 2004, Pitlochry, Scotland, 5-8 April 2004**
  Website: http://www.cs.stir.ac.uk/events/bctcs/
  Support: Best paper and best student presentation prizes.

- **AMAST 2004, Stirling, Scotland, 12-16 July 2004**
  Website: http://www.cs.stir.ac.uk/amast2004/
  Support: Best paper and best student presentation prizes.

- **MPC 2004, Stirling, 12 – 14 July 2004**
  Website: http://www.cs.cornell.edu/Projects/MPC2004
  Support: Best paper prize.

- **ZB2005, Royal Holloway University of London, Egham, 13-15 April 2005**
  Website: http://www.zuser.org/zug05/
  Support: Best paper and best student presentation prizes, contribution towards student bursaries.

A best paper/presentation prize consists of a year's membership to FACS and a year's subscription to the *Formal Aspects of Computing* journal.

If you are organising an event that would benefit from FACS support, please contact Professor Jonathan Bowen (jonathan.bowen@lsbu.ac.uk), the BCS-FACS Chair, in the first instance with a brief proposal explaining:

- The kind of support required.
- How the financial support will be used.
- The benefits to FACS.

Note that events *must* have a formal methods component to be considered for support. A short report is expected afterwards, ideally in a form that is suitable for use in a future issue of *FACS FACTS*.

Conference and Workshop Reports

FaSec 02: Formal Aspects of Security, Royal Holloway, University of London, 16 – 18 December 2002

Howard Marsh

The Formal Aspects of Computing Science (FACS) Specialist Group of the British Computer Society sponsored an international conference dealing with formal methods for analysis and evaluation of information security during 18 through 20 December 2002. The conference was held at Royal Holloway, University of London. It dealt primarily with the analysis and evaluation of protocols for authentication and validation of security certificates in an Internet environment, and covered the standard, well accepted threat models and protocols. The intent was to describe ongoing research related to the application of formal methods to prove the ability of the protocols to deliver required performance with respect to those threats and to identify weaknesses that could be exploited. However, several presentations also addressed considerations of a broader nature. Those included the following four interesting papers:

- Statistical analysis to complement formal methods and to provide results that could characterize protocol performance in a more quantitative way;
- The need to consider complex interrelationships within a network that can give rise to emergent behaviours;
- Resource monitors and the management of access based on privileges;
- An historical perspective on cryptography.

The overall content and level of the presentations was well selected by the organizing committee. The invited papers were extremely interesting and informative, and the regular papers were similarly of high quality and well presented.

Formal proceedings will be published in hard copy and disseminated to the registered participants. Softcopy may also be available on the web site. Further information and updates may be found at: http://www.lsbu.ac.uk/menass/fasec/.

Additional information on FACS objectives, organization, and events can be found at the web site: http://www.bcs-facs.org/.

Invited Talks and Keynote Address

The conference included a program of invited talks and a keynote address as follows:

- Authenticity Types for Cryptographic Protocols
  Dr. Andy Gordon, Microsoft Research (UK)

- Verifying the SET Protocol: Overview
  Dr. Lawrence Paulson, Microsoft Research and University of Cambridge (UK)
- Lifting Reference Monitors from the Kernel (Keynote Talk)
  Prof. Fred Schneider, Cornell University (USA)
- Critical Critical Systems
  Prof. Susan Stepney, University of York (UK)
- Analysing Security Protocols
  Dr. Dieter Gollman, Microsoft Research (UK)
- Cryptographic Challenges: the Past and the Future
  Prof. Bart Preneel, Kath University of Leuven (Belgium)
- TAPS: the Next Generation
  Mr. Ernie Cohen, Microsoft Research (UK)

Formal Analysis of Security Protocols

A majority of the conference was devoted to this area. Presentations covered a wide range of formal analysis applications, including protocol performance, protocol modelling, intrusion detection, and resistance to denial of service.

Since formal analysis requires detailed definition of fundamental aspects of the problem being analysed, one obvious limitation is that the analysis is directed totally to the defined threats, the defined objective functions, and of course the defined protocol being examined. As a result, the analysis results, while useful, are limited to those predefined aspects of the overall problem faced by the information assurance community. If a different threat or a different set of objectives were imposed, the analysis would have to be done again. Results obtained from the previous analyses would not necessarily be relevant. This was noted explicitly in several of the presentations.

In general, the approaches that were presented shared a common foundation in logical formalism to infer behaviour of the protocols. This type of analysis produces results that either confirm compliance with the objectives of the protocol under attack by the defined threats or identify specific failures. An important limitation in this type of analysis, and therefore a constraint in the applicability of the result, is that it is conducted as a "stand-alone" analysis. That is, it treats the protocol and the threat as a single adversarial instance without also considering other processes that occur concurrently in the network. Other processes that could affect an analysis include protocol screening at firewalls, potential multiple levels of authentication, and interactions with other protocols used for "housekeeping" and management in a distributed computing environment. The inclusion of such concurrent, and possibly interacting, processes could be a valuable addition to a formal analysis of information assurance.

Quantitative Approach to Protocol Analysis

The paper titled "Analysis of Probabilistic Contract Signing" applied quantitative statistical analysis to the formal treatment of security protocols. The case study was a two-party negotiation that required an exchange of privileges and commitments in a way that was fair to both parties, relatively prompt, and with assured nonrepudiation. It considered a contract signing protocol that was a variant of the Ben-Or, Goldreich, Micali, and Rivest (BGMR) protocol, intended to combine fairness with timeliness and still assure nonrepudiation to some predetermined level of confidence. The approach involved the two parties and a neutral "judge" who could respond immediately to each input and could issue a decision once the satisfactory level of confidence is achieved. The model assumed a Markov decision process. That is, the probabilities are biased by the history of prior actions of each participant.

Results were interesting in that they provide quantitative measures of performance of protocols under varying objectives for timeliness and fairness and under different assumptions regarding the ability of the participants to communicate with one another and with the judge. This added another important element to the formal analysis of protocols, since it introduced a quantitative way to characterize time sensitivity as a factor in determining the success of the protocol.

Further information can be obtained by contacting the authors: Gethin Norman at gxn@cs.bham.ac.uk and Vitaly Shmatikov at shmat@csl.sri.com.

Emergent Behaviours and the Implications for Information Assurance

Professor Susan Stepney of the University of York (United Kingdom) presented an invited paper entitled "Critical Critical Systems". She explained that the second instance of the word "critical" referred to the importance of the system, and the first instance referred to the emergent behaviour that is similar to a "critical phase transition" in physics.

Prof. Stepney's paper was principally motivational and dealt with this important area at a very general level. She made the point that the interactive nature of the various protocols and nodes in a network would give rise to "phase transitions" much like the ones we observe when water freezes or when ferromagnetic materials are heated to a temperature at which they become paramagnetic. She did not deal specifically with the non-linear, interactive properties of networks and the emergent behaviours that occur when networks are stressed by excessive demands for service or by incompatibilities between protocols and network quality of service (QoS) requirements.

Her group's research in this area is just beginning, so she had no specific analyses or research programs to discuss. However, she is clearly focused on this area as an important one for future research, and she indicated that she has funding from European sources to build her program.

Additional information can be found at http://www-users.cs.york.ac.uk/~susan/ or by contacting Professor Stepney at susan.stepney@cs.york.ac.uk.

Resource Monitors and Privilege Based Access Control

Professor Fred Schneider of Cornell University (United States) presented an invited paper entitled “Lifting Reference Monitors from the Kernel”. This was an extremely well presented and interesting paper, and it motivated consideration of the use of resource monitors and privilege management as a tool to enhance real time, dynamic QoS management up to the application layer.

Professor Schneider gave a brief history of resource monitors and then discussed the advantages using in-line reference monitors that can have access to calls on a wider set of resources than monitors confined to the kernel. He addressed the use of in-line reference monitors to control access to computing resources based on privileges assigned to the program requesting a resource as well as the basic system specifications for allocation of resources. Further information can be obtained from Professor Schneider at fbs@cs.cornell.edu.

Potential ability to use this type of reference monitor as a means to extend QoS management to the application layer seems attractive. In this case, one might replace access control based on “program” and “system” privileges by a more complex and near real time dependence on “program group”, “user group”, “current operational context”, and “system” privileges. This could allow the reference monitor to be “aware” of the service level agreement (or QoS contractual agreement) assigned to each class of user and application under the existing operational and network conditions. If the reference monitor could be used in this way, and if network and operational objectives and constraints could be provided, it might yield a mechanism for building total QoS management and control from the network layer up to the user layer in a way that is responsive to defined objectives and priorities. In other words, it could provide QoS policy management that is responsive to dynamically changing objectives and priorities and QoS control for end-user services based on those policies. This appears to be an attractive area of research in support of network centric operational capabilities.

Conclusion/Finding

This conference was well organized and executed. Attendance was mainly from European researchers, and US participation included only four delegates, three of whom presented papers. The invited papers were the most interesting and informative. The other talks varied from very detailed to very general discussions of ongoing research and gave a good perspective on the international interests and capabilities in this area.

An important benefit to attending the conference was the identification of specific opportunities for research that could be of value. Areas of interest include quantitative statistical analysis as an extension of formal methods, complexity theory applied to distributed computing and networks, and QoS management and control through the use of resource monitors that cooperate with network management and control processes.

15th International Workshop on the Implementation of Functional Languages & 4th Symposium on Trends in Functional Programming, Edinburgh, 8–12 September 2003

Greg Michaelson

Functional programming (FP) has a long history, reaching back through early realisations in languages like LISP to foundational theories of Computing, in particular lambda calculus and recursive function theory. FP has had wide influence in Computing, both through developments within the discipline, such as formal semantics, polymorphic type checking, lazy evaluation and structural proof, and as a practical embodiment of formalised approaches, such as specification, transformation and partial application.

One of the engaging features of FP is precisely the crossover between theory and practice. In particular, it is regarded as essential that all aspects of FP are appropriately formalised, in particular the specification and implementation of functional languages (FL). Thus, specialist events like the International Workshop on the Implementation of Functional Languages (IFL) and the Symposium on Trends in Functional Programming (TFP) attract contributions where strong use is made of syntactic, semantic and meta-mathematical formalisms to motivate, justify and underpin very practical evaluations of substantial software systems.

IFL, now in its 15th year, grew out of smaller workshops aimed at practitioners wrestling with the nuts and bolts of implementing highly abstract languages on real computers. FP has always been bedevilled by a reputation for slow and inefficient implementations. IFL is one venue where such problems are tackled head on, but again always using formal techniques to justify practical implementations.

TFP is a much younger Workshop with its origins in the Glasgow FP Workshops of the 1990s. More recently, the Scottish Functional Programming Workshops have been co-sponsored by a confederation of strong FP groups at Edinburgh, Glasgow, Heriot-Watt and St Andrews Universities. For 2003 SFP was renamed TFP to reflect the international origins of participants. SFP/TFP has a broader remit than IFL and is particularly aimed at PhD students presenting their research in public for the first time to a critical but supportive audience of more experienced peers.

This year, both IFL and TFP were co-located in Edinburgh, hosted by the Heriot-Watt and Edinburgh FP groups respectively. Both were attended by around 50 people with delegates from Australia, Germany, Holland, India, Spain, Sweden, Russia and the USA, as well as from the UK.

31 papers were given at IFL, and 12 at TFP, in lively sessions covering Testing, Compilation and Implementation, Applications, Language Constructs and Programming, Analysis and Optimisation, Concurrency and Parallelism, Types and Program Analysis, Parallel Applications, and Language Interfacing.

Between IFL and TFP a joint outing was made to the Falkirk Wheel and the Forth Rail Bridge, two fine examples of well-engineered Scottish hardware. That evening, at the banquet at the Bridge Inn Ratho, Arjen van Weelden and Rinus Plasmeijer were awarded the Peter Landin prize for their paper "Towards a Strongly Typed Operating System" presented at IFL'02 in Madrid.

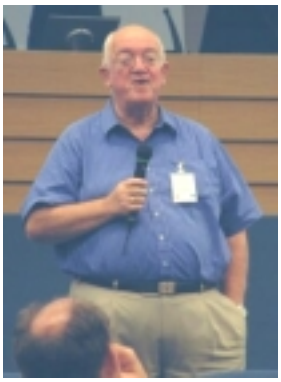
Both Workshops are open and all participants are encouraged to present their work. Subsequently, papers based on presentations may be submitted for consideration for the refereed proceedings, published by Springer LNCS for IFL and Intellect for TFP. Refereeing for IFL'03 and for TFP'03 have just concluded, and the proceedings should appear later in 2004.

The IFL and TFP Organising Committees are very pleased to acknowledge the financial support of BCS-FACS, which was used to subsidise attendance costs for postgraduate students.

FM 2003: 12th International FME Symposium, Pisa, Italy, 8–14 September 2003

Jonathan Bowen

The 12th International FME Symposium (FM 2003), organized by Formal Methods Europe, was held at the impressive Italian National Research Council ISTI-CNR (Institute of Science and Technology of Information) site on the outskirts of Pisa, Italy, 8–14 September 2003. This well-established symposium series is widely acknowledged as the leading international formal methods forum. BCS-FACS supported the event with a number of bursaries for students to attend tutorials (see section on *BCS-FACS Sponsored Events*).



Prof. Dines Bjørner (left) of DTU, Denmark, was a prominent figure at the symposium. In particular, he initiated a new Formal Techniques Industrial Association (ForTIA) during a formal methods Industry Day (I-Day) on Tuesday 9 September 2003. An international committee was formed, chaired by Dr. Anthony Hall, a leading formal methods practitioner of Praxis Critical Systems (Bath, UK). It is hoped that this association will provide a focus for the industrial use of formal methods worldwide. Companies with an interest in formal methods are encouraged to join the ForTIA association and initially membership will be free because it is supported by the European FP5 CologNet Network of Excellence on Computational Logic. For information on ForTIA, see http://www.fortia.org/.

The committee for the new Formal Techniques Industrial Association (ForTIA), chaired by Dr. Anthony Hall (far left)
(FM 2003 photographs by Jonathan Bowen)

The symposium included four invited talks. Kouichi Kishida of SRA-KTL, Tokyo, Japan, gave an amusing historical talk on “Looking Back to the Future”, starting with Confucious and including some interesting comparisons of philosophical works and software project management. Brian Randell of the University of Newcastle, an expert in dependability and the history of computing, as well as being a computing pioneer himself, talked “On Failures and Faults”, reminding us that real computer-based systems fail, often because of human fallibility and frailty. Gerard Holzmann, who has recently moved from Bell Labs to the Jet Propulsion Laboratory in Pasadena, California, and who is the inventor of the leading model-checker, SPIN, spoke on “Trends in Software Verification”. His new book on SPIN was also available hot off the press at the symposium (*The Spin Model Checker: Primer and Reference Manual*, published by Addison Wesley on 1 September 2003, ISBN 0321228626). Finally, Jean-Raymond Abrial, an independent consultant based in Marseille, France, and originator of both Z and B, two of the leading formal methods in the world, talked about “Event Based Sequential Program Development.” He illustrated his approach with a simple but real program development during the course of the presentation.

Dr. John Fitzgerald (University of Newcastle, UK), our FME liaison officer and Chair of the FME organization (right), also attended the symposium and chaired an FME meeting during the symposium.

The FM 2003 proceedings have been published as Springer-Verlag LNCS volume 2805, edited by Keijiro Araki, Stefania Gnesi and Dino Mandrioli. All the papers are available online from SpringerLink. Abstracts are freely available and full papers are available by subscription. The original symposium website is accessible under http://fme03.isti.cnr.it/ where a good selection of further photographs of the event can be found.

FORTEST Workshop, London South Bank University, 24 October 2003

Jonathan Bowen

The FORTEST Network is an EPSRC-funded collaboration of UK academic and industrial partners interested in the relationship between formal methods and testing. Members of the Network meet several times a year at one of the partner sites. On Friday 24 October 2003, an all-day Workshop was held in the Boardroom of the Technopark building at London South Bank University, with seven technical presentations. The workshop was open to FACS members and there were around 25 attendees on the day.

Dr. Mark Harman, Brunel University, asked the question “Can Slicing really Assist Testing?” in the morning. Prof. Doron Peled, who has recently moved from the US to

the University of Warwick, talked on “Black Box Checking” just before lunch and François Siewe of De Montfort University spoke on “A Formal Framework for Access Control Policies Enforcement” immediately after lunch. The workshop was also an opportunity for a number of research students to present their work in a friendly but experienced setting.

Some of the FORTEST Workshop participants, London South Bank University, 24 October 2003
(Photograph by Jonathan Bowen)

Information on the EPSRC FORTEST Network is under http://www.fortest.org.uk/. Further specific information on the workshop is available online under http://www.cafm.lsbu.ac.uk/fortest/workshop/, including slides for all the talks.

Teaching Formal Methods: Workshop at Oxford Brookes University, 12 December 2003

David Lightfoot

The timing, Friday 12th December, gave an end-of-term, Christmassy feeling to the one-day workshop on teaching Formal Methods organised by the Applied Formal Methods Research Group of Oxford Brookes University in conjunction with BCS-FACS. The rainy weather made the coffee and fresh Danish pastries that greeted the delegates particularly welcome.

Workshop chairman Professor David Duce introduced John Nealon, Head of the Department of Computing, who welcomed around 45 delegates, who had gathered from across Britain and also France, Belgium, Germany and Italy. There was even a delegate from Utah, United States, currently based in Britain.

The workshop included demonstrations of software tools and displays of books by Palgrave and Springer, who kindly supported the ‘verre du vin’ that gave a pleasant finish to the day.

Invited speaker Professor Steve Schneider of Royal Holloway spoke about the way formal methods fit into the curriculum at his university and gave some advice on choosing appropriate examples for teaching.

The various talks during the day developed the themes of the workshop and it was interesting to note the high degree of consistency in the issues and experience of delegates of such diverse origin.

Chief among concerns was the difficulty of teaching formal methods to students without a strong mathematical background. Many speakers showed ways of motivating students by showing them the value of the methods in contexts to which they could relate. Others gave examples that had proved successful.

A major theme was the need for the mathematics appropriate to software engineering to take its place across the computing curriculum, rather than being a 'niche' topic. The need to persuade not only students, but also colleagues and politicians, of the value of the mathematics was highlighted.

The major conclusion of the delegates was that the work of this successful and enjoyable workshop should be continued, by sharing teaching resources and by holding further events.

Further information:

Copies of the papers and slides from the workshop can be found at:

http://wwwcms.brookes.ac.uk/tfm2003/

Future event:

The event to be organised by Ghent University, Belgium in November 2004 will be of interest:

http://www.intec.rug.ac.be/groupsites/formal/Sympos2004/sympos2004.htm

PRESENTED PAPERS

Invited Talk: *Formal Methods At Royal Holloway: Perspectives and Pitfalls*
Steve Schneider, Royal Holloway, University of London, UK

Algorithmic Problem Solving
Roland Backhouse, University of Nottingham, UK

Teaching ASMs to Practice-Oriented Students With Limited Mathematical Background
Egon Boerger, ETH Zurich, Switzerland

Development of an Interactive Case e-Study
Neville Dean, Anglia Polytechnic University, UK

Tool based support for teaching formal specification of business components
Johannes Maria Zaha and Antonia Albani, Augsburg University, Germany

Teaching Tools for Turing Machines
Clare Martin and Tjeerd Olde Scheper, Oxford Brookes University, UK

Teaching Formal Methods: an Industrial Perspective
Jeremy Martin, Oxagen Ltd., UK

Informal Formal Methods in a Computer Engineering Curriculum
Dyke Stiles, Utah State University, USA

Can lightweight formal methods carry the weight?
Raymond Boute, Ghent University, Belgium

The assessment of students on FM courses: a position paper
Steve King, University of York, UK

Some reflections on the teaching of formal methods
Henri Habrias and Sebastien Faucou, University of Nantes, France

Supplementing the understanding of Z: a formal approach to database design
Andrew Simpson and Andrew Martin, Oxford University Computing Laboratory, UK

From Z to SPIN in One Module
Jane Rudall, University of Wales, Bangor, UK

"Voici les votes!" - Formal Specification As Light Entertainment
David Lightfoot, Oxford Brookes University, UK

ADDITIONAL PAPERS

Return to the Theorem Prover's House: Application of the Learning Grid to Formal Methods
Juan Bicarregui, Damian MacRandal, Brian Matthews, Brian Ritchie, CLRC Rutherford Appleton Laboratory

Teaching Formal Methods with Perfect Developer
David Crocker, Escher Technologies Ltd

Hello Class - let me introduce you to Mr Six
Kate Finney, University of Greenwich

Formal Methods teaching at the University of Stirling
Savi Maharaj, University of Stirling

BCS-FACS Chair Jonathan Bowen and TFM Workshop Chair David Duce
(Photograph by Neville Dean)

Invited speaker Steve Schneider at the TFM Workshop
(Photograph by Jonathan Bowen)

Spotlight

Formal Aspects of Computing Science Specialist Group

The Formal Aspects of Computing Science Specialist Group is celebrating its 25th anniversary this year, *write chairman Jonathan Bowen and membership secretary Paul Boca.*

The Group was formed in 1978 to promote awareness of formal approaches to constructing computer-based systems. It set out to address issues in the application of mathematical approaches in computer science. It has organised events on topics including concurrency, domain theory, formal aspects of human–computer interaction, object-oriented programming and security, to name but a few. These have had different lengths and formats, sometimes providing tutorial sessions to introduce new theories and formalisms.

The Group also founded the Formal Aspects of Computing journal. This journal, published four times a year by Springer, is truly international and aims to publish papers at the junction of theory and practice.

The Group was relaunched last year with some new committee members and a new chairman: Jonathan Bowen, professor of computing at London South Bank University. Some achievements since the relaunch include:

- A redesigned website, with a wealth of information, including events, Group activities and links to other sites of interest.
- A varied programme of events, including seminars by key researchers and, to coincide with the 25th anniversary, an international conference on formal aspects of security. The Group is also organising an event on formal aspects of XML at the Royal Society in London in December.
- Sponsorship of student attendance at conferences: the Group is helping postgraduate students to attend the major FM2003 formal methods conference in Pisa, from 8–14 September.
- Support and sponsorship for events: the Group has supported two BCS Guildford Branch meetings and has offered sponsorship of prizes for the best papers at ZB2003, the international conference for Z and B users. It is also supporting a workshop on teaching formal methods at Oxford Brookes University on 12 December. Discussions about sponsoring another UK event in this anniversary year are under way. The Group has already started compiling a list of events to support in 2004.

Membership is open to anyone, but reductions are available for BCS members or professional affiliate members with internet access. A new rate for former members who are now retired or studying for a degree or not in paid work has recently been introduced. Members receive a discount at Group events, when this is available, and can subscribe to the journal at a greatly reduced rate. They receive information on activities in the formal methods area via a periodic newsletter and an email list.

The Group is at http://www.bcs-facs.org/.

Electronic Workshops in Computing

Paul Boca

The **Electronic Workshops in Computing (eWic)** series (ISSN 1477-9358) contains a number of conference proceedings in different specialist areas, including **formal methods** and **formal aspects**. Some examples of proceedings in the series are:

- Irish Workshops on Formal Methods:
  - **6th International Workshop on Formal Methods**, Dublin City University, 11 July 2003.
  - **5th Irish Workshop on Formal Methods**, Dublin, Ireland, 16 - 17 July 2001.
  - **4th Irish Workshop on Formal Methods**, Maynooth, Ireland, 5 - 6 July 2000.
  - **3rd Irish Workshop on Formal Methods**, Galway, Ireland, 1 - 2 July 1999.
  - **2nd Irish Workshop on Formal Methods**, Cork, Ireland, 2 - 3 July 1998.
  - **1st Irish Workshop on Formal Methods**, Dublin, Ireland, 3 - 4 July 1997.
- Northern Formal Methods Workshops:
  - **3rd BCS-FACS Northern Formal Methods Workshop**, Ilkley, UK, 14 -15 September 1998.
  - **2nd BCS-FACS Northern Formal Methods Workshop**, Ilkley, UK, 14 -15 July 1997.
  - **1st BCS-FACS Northern Formal Methods Workshop**, Ilkley, UK, 23 - 24 September 1996.
- Refinement Workshops:
  - **BCS-FACS 7th Refinement Workshop**, Bath, UK, 3 - 5 July 1996.

The eWiC series is **free** to access. For more information, please visit the eWiC website: http://ewic.bcs.org.

Improving FACS membership procedures

Paul Boca

As reported in the previous issue of *FACS FACTS*, membership fees and FAC journal subscription fees can be paid by credit card (through PayPal). This method of payment has proved popular, and has made it easier for overseas members to renew. However, members paying by credit card (and also those paying by direct transfer) have to post their completed membership forms back to the membership secretary. This slows down the processing of new applications and journal subscriptions, and so FACS is currently looking into the possibility of introducing online renewals.

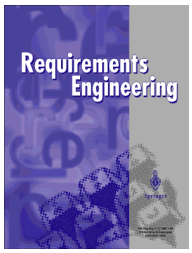
In the meantime, members paying by credit card (or direct transfer) can scan in their completed forms and email them to Paul Boca (Paul.Boca@virgin.net). Alternatively completed forms can be faxed to: +44 (0)207 561 0139.

For convenience, a membership form is included at the end of this newsletter.

New Springer Discounts for FACS Members

Paul Boca

In addition to a substantial saving on the cost of subscribing to the Formal Aspects of Computing journal, FACS members are now entitled to:



- 25% discount on Springer-Verlag book titles;
- 20% discount on the Requirements Engineering Journal.

If you would like to take advantage of these new discounts, please contact Springer-Verlag London directly on:

journals@svl.co.uk

As part of the ordering process, Springer will verify that your FACS membership is current.

Some Forthcoming Events

The following is a selection of the large number of calls for papers that have been received. More listings can be found at http://www.fmeurope.org/events.html.

Title	**Submission deadline**	**Details**
		URL
IFM 2004	Passed	4th International Conference on Integrated Formal Methods, 5–7 April, 2004, Canterbury, Kent
		http://www.cs.kent.ac.uk/ifm2004/
MPC 2004	Passed	7th International Conference on Mathematics of Program Construction, 12–14 July, Stirling, Scotland
		http://www.cs.cornell.edu/Projects/MPC2004/
AMAST 2004	Passed	10th International Conference on Algebraic Methodology And Software Technology, 12–16 July, Stirling University, Scotland
		http://www.cs.stir.ac.uk/amast2004/
BCTCS 2004	Mid March	20th British Colloquium for Theoretical Computer Science, 5–8 April, 2004, Pitlochry, Scotland
		http://www.cs.stir.ac.uk/events/bctcs/
ARTS 2004	29 March 2004	6th AMAST Workshop on Real-Time Systems, 12 July 2004, Stirling, Scotland
		http://www.cs.le.ac.uk/events/ARTS2004
SEFM 2004	5 April 2004	2nd IEEE International Conference on Software Engineering and Formal Methods, 26–30 September, Beijing, China
		http://www.iist.unu.edu/SEFM2004/
MFCSIT 2004	15 June 2004	3rd Irish Conference on the Mathematical Foundations of Computer Science and Information Technology, 22-23 July, Trinity College, Dublin, Ireland
		http://www.cs.tcd.ie/MFCSIT2004/
BCTCS 2005	To be announced	21st British Colloquium for Theoretical Computer Science, University of Nottingham, 21 – 24 March 2005 (provisional dates)
		http://www.cs.nott.ac.uk/~gmh/bctcs05.html
ZB 2005	To be announced	4th International Conference of B and Z Users, 13–15 April, 2005, Royal Holloway University of London
		http://www.zusser.org/zug05/
FM2005	To be announced	13th International Symposium on Formal Methods, 18–22 July, University of Newcastle upon Tyne, UK
		http://www.csr.ncl.ac.uk/fm05/

Posts in Formal Methods

Large numbers of posts are announced on various email lists, but most of them become out of date very soon after the announcement. Anyone really keen to find a position in formal methods or related activities could subscribe to the ProCoS (Provably Correct Systems) electronic mailing list (see online information under http://www.jiscmail.ac.uk/lists/procos.html). Also, more listings can be found at http://www.fmeurope.org/positions.html and http://www.jobs.ac.uk/.

FACS Officers

Chairman (& ZUG Liaison)	Jonathan Bowen	jonathan.bowen@lsbu.ac.uk
Treasurer	Jawed Siddiqi	J.I.Siddiqi@shu.ac.uk
Minutes Secretary	Roger Carsley	R.E.Carsley@westminster.ac.uk
Membership Secretary	Paul Boca	Paul.Boca@virgin.net
BCS Liaison	Margaret West	m.m.west@hud.ac.uk
FAC Journal Liaison	John Cooke	D.J.Cooke@lboro.ac.uk
Newsletter Editor	Kevin Lano	kcl@dcs.kcl.ac.uk
Events Coordinator	Ali Abdallah	abdallae@lsbu.ac.uk
Industrial Liaison	Judith Carlton	jcarlton@eschertech.com
Societies Liaison (FME & SCSC/SRMC)	John Fitzgerald	John.Fitzgerald@newcastle.ac.uk
Web Development	Mike Stannett	m.stannett@dcs.shef.ac.uk

FACS Central

BCS FACS

c/o Prof. Jonathan Bowen (Chair)
London South Bank University
Faculty of BCIM
Borough Road
London SE1 0AA
United Kingdom

Tel. +44 (0)20 7815 7462
Fax. +44 (0)870 133 8371
Email. info@bcs-facs.org.uk
Web: www.bcs-facs.org

FACS membership application/renewal (2004)

Title (Prof/Dr/Mr/Ms) _____ **First name** _____ **Last name** _____

Email address (required for options * below)_____

BCS membership No. (or sister society name + membership number)

_____

Address _____

_____

_____

Postcode _____ **Country** _____

I would like to take out **membership to FACS** at the following rate:

- ❑ £15 (Previous member of BCS-FACS now retired, unwaged or a student)
- ❑ £15 (Member of BCS or sister society with web/email access)*
- ❑ £30 (Non-member or member of BCS or sister society without web/email access)

In addition I would like to subscribe to **Volume 16 of the FAC journal** at the following rate:

- ❑ £42

For electronic only journal subscription*, please tick here ❑ . No further discount given.

The total amount payable to BCS-FACS in **pounds sterling** is **£ 15 / 30 / 57 / 72** (delete as appropriate). I am paying by:

- ❑ Cheque made payable to **BCS-FACS** (**in pounds sterling**)
- ❑ Credit card via PayPal (instructions can be found on the BCS-FACS website)
- ❑ Direct transfer (in **pounds sterling**) to:

  Bank: Lloyds TSB Bank, Langham Place, London
  Sort Code: 30-94-87
  Account Number: 0173977
  Title of Account: BCS-FACS

If a receipt is required, please tick here ❑ and **enclose** a stamped self-addressed envelope.

Send completed forms to:

Dr Paul P Boca
PO BOX 32173
LONDON N4 4YP

For FACS use only

Received by FACS	Date:	Initials:
Sent to Springer	Date:	Initials:
Actioned by Springer	Date:	Initials: