

The tutorial gives an overview of the ESPRESS approach. Illustrated by one of the ESPRESS case studies, an intelligent cruise control system, the development of a requirements specification using a combination of Statecharts and the Z notation will be presented in detail. Validation techniques based on this specification will be explained. Specific topics include:

- Agendas, which provide a methodological concept for representing process knowledge for particular software architectures on a fine-grained level of detail.
- The notation mSZ, which combines the formalisms Statecharts, Z, and temporal logic for the specification of safety-critical reactive systems.
- Validation techniques based on the Isabelle/HOL-Z tool, including verification of certain aspects of a specification, and generation of test cases.
- An online tool demonstration, showing the integration of commercial tools such as Statemate with the ESPRESS tools for editing, type-checking, and validating Z and mSZ specifications.

The tutorial is aimed at practitioners and researchers interested in the requirement specification of reactive and embedded systems. Basic knowledge about formal methods and Z is assumed.

Contact Wolfgang Grieskamp (email wg@cs.tu-berlin.de) for further information.

TUTORIAL B: Effective Use of Z/EVES

Presenter: Mark Saaltink, ORA, Canada

This half-day tutorial will show how to use mechanical assistance in the analysis of some large Z specifications. Among the areas we will highlight are:

- the use of sections. Using the proposed ISO Z sections mechanism lets us divide a specification into reusable generic parts and a parts specific to the problem at hand
- the automation of simple inferences. Z/EVES allows its users to mark theorems for automatic use. Doing so properly allows the prover to look after the trivial, leaving the user free to focus on the main issues in a proof.
- pitfalls of proofs in Z. Z is supposed to allow for a fairly conventional approach to discrete mathematics. In the area of generics it falls short of this goal. We explain the problem, show how it affects Z/EVES, and discuss solutions.

Participants should come with a reasonably good understanding of Z and some interest in proofs, and should leave with an interest in Z/EVES and an understanding of ways to present their specifications to facilitate proofs.

Detailed topics will include:

- a review of Z/EVES capabilities,
- a discussion of sections, as proposed for ISO standard Z,
- a discussion of proofs, both informal and formal,
- a presentation of a section,
- an analysis of parts of a specification, and
- a discussion of proof pitfalls.

Contact Mark Saaltink (email mark@ora.on.ca) for further information.

For information concerning tutorials, please contact:

David Till, City University, UK Email: till@soi.city.ac.uk

ZUM '98

11th International Conference of Z Users

Organized by the Z User Group
In cooperation with Daimler-Benz Research Berlin, GMD and TU Berlin
Sponsored by Daimler-Benz and Praxis Critical Systems
Supported by BCS-FACS

Berlin, Germany, 24-26th September 1998

- Z standardization and foundation
- Z and reactive systems
- Z specification methodology
- Z on the web
- Combining Z with SE techniques
- Z applications

The following invited speakers will give presentations at the conference:

Dr. Klaus Grimm (Daimler-Benz AG, Germany)
Prof. Nancy Leveson (University of Washington, USA)
Prof. Dr. Ernst-Ruediger Olderog (Universitaet Oldenburg, Germany)
Ib Sørensen (B-Core (UK) Limited, UK)

The conference will also include:

Tool demonstrations
Educational Issues Session
Tutorials
Exhibitions by publishers
Posters or leaflets

For up-to-date on-line information about the conference, see:

<http://www.fmse.cs.reading.ac.uk/zum98/>

DAIMLERBENZ
AKTIENGESELLSCHAFT



Conference Chair:

General enquiries about the conference may be directed to:

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Local organization and Tool Demonstrations

For information concerning tool demonstrations and general local organization contact:

Wolfgang Grieskamp, TU Berlin, Germany
Email: wg@cs.tu-berlin.de

Stephan Herrmann, GMD, Germany
Email: sh@first.gmd.de

For details concerning publishers' stands, leaflets and posters, or any other queries, please contact Mike Hinchey (contact information above).

Programme committee:

Ali Abdallah, The University of Reading, UK
Jonathan Bowen, The University of Reading, UK
Paolo Ciancarini, University of Bologna, Italy
Neville Dean, Anglia Polytechnic University, UK
John Derrick, The University of Kent at Canterbury, UK
Mark d'Inverno, University of Westminster, UK
Andy Evans, University of Bradford, UK
Andreas Fett, Daimler-Benz AG, Germany (local org)
David Garlan, Carnegie-Mellon University, USA
Wolfgang Grieskamp, TU Berlin, Germany (local org coordinator)
Henri Habrias, University of Nantes, France
Jonathan Hammond, Praxis Critical Systems, UK
Ian Hayes, University of Queensland, Australia
Stephan Herrmann, GMD, Germany (local org)
Mike Hinchey, NJIT, USA & University of Limerick, Ireland
Hans-Martin Hoercher, Vossloh System-Technik GmbH, Germany
Jonathan Jacky, University of Washington, USA
Stefan Jähnichen, GMD & TU Berlin, Germany (local org)

ZUM'98 Educational Issues Session

ZUGEIS Organizer

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A separate mailing list related to the meeting, and acting as a forum for educators and others to discuss related areas, is available. To subscribe, email to zugeis-request@comlab.ox.ac.uk including your name and address and a brief statement of your interests.

Saturday p.m., 26th September 1998

Note that the session will be informal giving an opportunity for discussion.

13.00 Lunch

14:00 Introduction -- Neville Dean, UK

What and How to Teach (Chair: Mike Hinchey, Ireland/US)

14:05 Z on the Web -- Jonathan Bowen, UK

14:30 Mental models of Z -- Neville Dean, UK

15:00 What makes a good specification case study?
(Panel Discussion) -- Norah Power, Ireland

15:30 Coffee Break

16:00 Assessment Issues (Chair: Neville Dean, UK)

16:00 Collaborative work to answer a test on formal specification in B
-- Henri Habrias, France

16:30 Managing Z coursework on-line -- Zarina Shukur, Edmund Burke and Eric Foxley, UK

17:00 General discussion

17:20 Concluding remarks

17:30 Close

ZUM'98 tutorials

Wednesday, 23rd September 1998

TUTORIAL A: Developing Safety-Critical Embedded Systems: The ESPRESS Approach

Presenters: Wolfgang Grieskamp (1), Maritta Heisel (2), Thomas Santen (3) and Matthias Weber (4)

- (1) Technische Universität Berlin
- (2) Otto-von-Guericke Universität Magdeburg
- (3) GMD FIRST
- (4) Daimler-Benz AG

ESPRESS is an application-oriented German project which aims to develop a software technology for the construction of safety-critical embedded systems. Sponsored by the German ministry of education and research, BMBF, the project is a cooperation between Daimler-Benz AG, Robert Bosch AG, the Fraunhofer Gesellschaft, GMD Gesellschaft für Mathematik und Datenverarbeitung and the Technische Universität Berlin.

Friday, 25th September 1998

09:15 Safety-Critical and Real-Time Systems (Chair: Mike Hinchey)

- 09:15 INVITED SPEAKER Designing a Requirements Specification Language for Reactive Systems -- Prof. Nancy Leveson, University of Washington, USA
10:00 Modelling a Real-Time Program in Z -- J. Jacky, USA

10:30 Coffee Break

11:00 Theory (Chair: Sam Valentine)

- 11:00 Recursive Definitions in Z -- R.D. Arthan, UK
11:30 A Logic for the Schema Calculus -- M.C. Henson and S. Reeves, UK/New Zealand

12:00 Tool demonstrations

12:30 Lunch

14:00 Theory and Standards (Chair: Jonathan Bowen)

- 14:00 INVITED SPEAKER Combining Specification Techniques for Processes, Data and Time -- Prof. Ernst-Ruediger Olderog, University of Oldenburg, Germany
14:45 Innovations in Standard Z Notation -- I. Toyn, UK

15:15 Coffee Break

16:00 Issues (Chair: Neville Dean)

- 16:00 Comparing Extended Z with a Heterogeneous Notation for Reasoning about Time and Space -- R. Paige, Canada
16:30 Inconsistency and Undefinedness in Z - A Practical Guide -- S.H. Valentine, UK

17:00 Close

17:30 Optional guided tour (followed by dinner)

Saturday a.m., 26th September 1998

09:00 Refinement (Chair: David Till)

- 09:00 Compositional Specification of Controllers for Batch Process Operations -- K. Lano, P. Kan and A. Sanchez, UK
09:30 Testing Refinements by Refining Tests -- J. Derrick and E. Boiten, UK
10:00 More Powerful Data Refinement in Z -- S. Stepney, D. Cooper and J.C.P. Woodcock, UK

10:30 Coffee Break

11:00 Object Orientation (Chair: John Derrick)

- 11:00 Adding Timed Concurrent Processes to Object-Z: A Case Study in TCOZ -- B. Mahony and Jin Song Dong, Australia
11:30 Object-Oriented Specification of Hybrid Systems using UML^h and ZimOO -- V. Friesen, A. Nordwig and M. Weber, Germany
12:00 Translating the OMT Dynamic Model into Object-Z -- S. Dupuy, Y. Ledru and M. Chabre-Peccoud, France

12:30 Final Remarks and Best Paper Vote -- Mike Hinchey

12:45 Close

Kevin Lano, Imperial College, London, UK
Shaoying Liu, Hiroshima City University, Japan
Jean-Francois Monin, France Telecom CNET DTL/MSV, France
Peter Pepper, TU Berlin, Germany (local org)
Norah Power, University of Limerick, Ireland
Alf Smith, DERA Malvern, UK
David Till, City University, London, UK
Sam Valentine, University of York, UK
Matthias Weber, Daimler-Benz AG, Germany (local org)
Jim Woodcock, Oxford University, UK
John Wordsworth, IBM Hursley UK Laboratories, UK

Local information

The city of Berlin is located at the very centre of Europe, close to the border with Poland (distance 100 km) and the Czech Republic (250 km).

The conference takes place at the campus of the Technische Universität Berlin (TUB). With around 37,000 students, the TUB is the largest technical university in Germany. Teaching and research in the TUB computer science department focus on software and communication technology, with a strong tradition regarding formal methods, in particular using algebraic specification.

The TUB campus is located within the inner city of Berlin, around 20 minutes walking distance (through the central park Tiergarten) from the Brandenburg Gate (Brandenburger Tor) and the Potsdamer Platz.

Travel

Berlin has good road and rail connections, and offers access by air via the three international airports: Tegel, Schönefeld, and Tempelhof. Flights from western Europe usually arrive at Tegel to the north of central Berlin. From there to the inner city via taxi costs around 30 DM. Coaches (bus lines X9 and 109) to the main railway station Zoologischer Garten, which is near to the conference venue, are also available.

Accommodation

We have made special arrangements with three hotels in the inner city of Berlin:

Hotel A. Berlin Excelsior Hotel, Hardenbergstr. 14, 10623 Berlin. Tel: +49+30-3155-0, Fax: +49+30-3155-1002. Located in the south of the TUB campus, only a few minutes by foot from the conference venue. Price: 171/222 DM per night for a single/double room.

Hotel B. SORAT Art'otel Berlin, Joachimstalerstr. 29, 10719 Berlin. Tel: +49+30-8844470, Fax: +49+30-88447700. Located very near to the Kurfürstendamm, the famous shopping boulevard of Berlin, and to the main railway station, Zoologischer Garten. About 15-20 minutes by foot to the conference venue. Alternatively, take the underground U2 from Zoologischer Garten, direction Ruhleben, to the next station, Ernst-Reuter-Platz. Price: 161/197 DM per night for a single/double room.

Hotel C. Hotel unter den Linden, Unter den Linden 14, 10117 Berlin. Tel: +49+30-238110, Fax: +49+30-2811100. Located at the representative boulevard Unter den Linden, in the eastern central city (Berlin Mitte), where the new government area is to be found. Around 10 minutes using the underground U2, starting at station Mohrenstr., direction Ruhleben, to the conference venue, station Ernst-Reuter Platz. Price: 116 DM per night for a single room (double rooms not available).

All hotel prices include breakfast buffet, service, and VAT.

Rooms need to be reserved using a separate hotel booking form. The advertised prices for hotels can be offered during the period starting two days before and finishing two days after the main conference.

For further information please have a look at the website.

Conference events

A reception is planned on Wednesday evening; details will be announced in due course. There will be a conference banquet on Thursday, which is included in the registration fee. Extra places can be reserved if required.

On Friday evening there is an optional guided tour on foot to the Potsdamer Platz area, the so-called Schaustellentour ("Schau-stelle" is an artificial word derived from "Bau-stelle", where Baustelle means construction area, and "Schau" means just show). The tour offers a mixture of historical and architectural information (Brandenburger Tor, Reichstag, Wilhelmstrasse, and so on - the political centre of the 2nd and 3rd German Reich) with information about the newly constructed government and business area located there. The tour is on foot and will take approximately 2 hours. For a dinner following the tour, restaurants in the area will be recommended.

Bookings

Please complete the conference booking form and hotel booking form below as required and send them by fax (preferably) or postal mail to:

BWO Marketing Service GmbH
"ZUM'98"
Mohrenstrasse 63-64
10117 Berlin, Germany
Fax: +49-30-22668464
Email: drooff@ibm.net (c/o Stephan Drooff)

For the early registration fee and guaranteed hotel room bookings, your booking should arrive by 10th AUGUST 1998. You will receive an acknowledgment for the hotel booking; receipts will be handed out at registration. For all those paying by credit card, the fee for early conference booking will be charged at the end of August, and for the hotel after the conference. In the case of cancellation less than 5 working days before arrival, cancellation fees may have to be paid.

Late booking for the conference and for hotels can be made by email and payment made at registration (using a Mastercard/Visa credit card or in German DM cash). Hotel booking after 10th August cannot be guaranteed, but we will probably find accommodation for you.

NOTE: FOR SECURITY DO NOT EMAIL CREDIT CARD DETAILS. Only send credit card details by fax or postal mail.

Those who would like to pay by cheque send the cheques (noting the usual restrictions on amount) with the booking forms. There is no fee for using EuroCheques, but we have to charge a fee of 25 DM for processing foreign cheques (please add this fee to the amount). If you require an invoice for your booking, there is an administration charge (see the conference booking form).

Important: please send different cheques for conference booking and for hotel booking. For the conference booking, make the cheque payable in German Marks (DM) to "BWO Marketing Service GmbH". For the hotel booking, make the cheque payable in German Marks (DM) to "DER" (Deutsches Reisebüro). Include a deposit of 200 DM for the hotel booking. You will receive an acknowledgment for the actual reservation - according to availability and your first and second hotel choice - and have to pay the remaining balance by 10th AUGUST 1998.

Tutorials and registration provisional timetable

Wednesday, 23rd September 1998

- 13:00 Tutorial registration / Lunch
- 14:00 Developing Safety-Critical Embedded Systems: The ESPRESS Approach
(Wolfgang Grieskamp et al., Germany)
- 15:30 Coffee Break
- 17:30 Close
- 14:00 Effective Use of Z/EVES (Mark Saaltink, Canada)
- 15:30 Coffee Break
- 17:30 Close
- 18:00-19:00 Conference registration / Reception

Note: tutorials will only take place if sufficient numbers book. Further tutorial information is available below.

ZUM'98 provisional programme: 24-26th September 1998

Thursday, 24th September 1998

- 09:00 Registration / Coffee
- 09:30 Welcome (Chair: Mike Hinchey)
 - 09:30 Opening remarks -- Mike Hinchey, University of Limerick, Ireland
 - 09:45 INVITED SPEAKER Industrial Requirements for the Efficient Development of Reliable Embedded Systems -- Klaus Grimm, Daimler-Benz AG, Germany
- 10:30 Coffee Break
- 11:00 Concurrency (Chair: Wolfgang Grieskamp)
 - 11:00 How to Combine Z with a Process Algebra -- C. Fischer, Germany
 - 11:30 The Specification and Refinement of an Environmental Model -- W.J. Stoddart, UK
 - 12:00 Formal Derivation of Finite State Machines for Class Testing
-- L. Murray, D. Carrington, I. MacColl, J. McDonald and P. Strooper, Australia
- 12:30 Lunch
- 14:00 Tools (Chair: Andreas Fett)
 - 14:00 INVITED SPEAKER Using B to Specify, Verify and Design Hardware Circuits
-- Ib Sørensen, B-Core(UK) Limited, UK
 - 14:45 Z on the Web using Java -- J.P. Bowen and D. Chippington, UK
 - 15:05 Visualizing Z Notation in HTML Documents
-- P. Ciancarini, C. Mascolo and F. Vitali, Italy
- 15:30 Coffee Break
- 16:00 Z and HOL (Chair: Stephan Herrmann)
 - 16:00 On the Semantic Relation of Z and HOL -- T. Santen, Germany
 - 16:30 HOL-Z in the UniForm-Workbench - A Case Study in Tool Integration for Z
-- C. Lüth, E. W. Karlsen, Kolyang, S. Westmeier and B. Wolff, Germany
- 17:00 AGM of the Z User Group (Chair: Jonathan Bowen)
- 17:30 Close
- 18:00 - 19:00 Conference registration/ Reception
- 19:30 Conference Banquet