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Preface

Computers and their interactions are becoming the characteristic features of our time: Many people believe that the industrial age is going over into the information age. In the same way as life of the beginning of this century was dominated by machines, factories, streets and railways, the starting century will be characterised by computers and their networks. This change naturally affects also the institutions and the installations our lives depend upon: power plants, including nuclear ones, chemical plants, mechanically working factories, cars, railways and medical equipment; they all depend on computers and their connections. In some cases it is not human life that may be endangered by computer failure, but large investments; e.g. if a whole plant interrupts its production for a long time. In addition to loss of life and property one must not neglect public opinion, which is very critical in many countries against major technical defects.

The related computer technology, its hardware, software and production process differ between standard applications and safety related ones: In the safety case it is normally not only the manufacturers and the customers that are involved, but a third party, usually an assessor, who is taking care of the public interest on behalf of a state authority. Usually safety engineers are in a better position than their colleagues from the conventional side, as they may spend more time and money on a particular task and use better equipment. On the other hand, in addition to the customer's wishes, they have to take into account the demands of assessors and regulators, who may reject their final product.

It has been the purpose of the SAFECOMP conference series to review the state of science and technology of safety related computing and provide a constructive exchange of ideas, opinions and visions among experts.

Since the SAFECOMP conferences have been running over nearly 20 years now, one may make some comparisons: This year's contributions are characterised by a large share of formal approaches and formal methods; it seems that deterministic views are coming to dominate over probabilistic ones. Another characteristic is that the hardware problems as such seem to be more or less solved; the contributions submitted in 1998 are dealing mainly with system aspects and with software aspects.

I hope that the reader of this book gets important information on how to make computer controlled systems safer at lower cost.

Fulda, Germany
August 1998

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Contents

Formal Methods I - Analysis and Specification

CoRSA - A Constraint Based Approach to Requirements and Safety Analysis	3
<i>K. Hollingworth and A. Saeed</i>	
An Agenda for Specifying Software Components with Complex Data Models	16
<i>K. Winter, T. Santen and M. Heisel</i>	
Safety in Production Cell Components: An Approach Combining Formal Real-Time Specifications and Patterns	32
<i>H. Rust</i>	
Safety Properties Ensured by the OASIS Model for Safety Critical Real-Time Systems	45
<i>V. David, J. Delcoigne, E. Leret, A. Ourghanlian, P. Hilsenkopf and P. Paris</i>	
Linking Hazard Analysis to Formal Specification and Design in B	60
<i>K. Lano, P. Kan and A. Sanchez</i>	

Management and Human Factors

Controlling Your Design through Your Software Process.....	77
<i>N. Martín-Vivaldi and P. Isacsson</i>	
Operator Errors and Their Causes.....	89
<i>T. Grams</i>	

Security

A Performance Comparison of Group Security Mechanisms	103
<i>A. Hutchison and M. Wallbaum</i>	
Towards Secure Downloadable Executable Content: The Java Paradigm.....	117
<i>J. Iliadis, S. Gritzalis and V. Oikonomou</i>	
Model and Implementation of a Secure SW-Development Process for Mission Critical Software	128
<i>F. Dafelmair</i>	
Impact of Object-Oriented Software Engineering Applied to the Development of Security Systems.....	143
<i>S. Jovalekic and B. Rist</i>	

Medical Informatics

'Profit by Safety' or Quackery in Biomedical Information Technology? 159
B.A. de Mol and F. Koornneef

Formal Methods II - Languages and Verification

Towards Automated Proof of Fail-safe Behaviour 169
P. Liggesmeyer and M. Rothfelder

Verifying a Time-Triggered Protocol in a Multi-language Environment 185
A. Merceron, M. Müllerburg and G.M. Pinna

Methods and Languages for Safety-Related Real-Time Programming 196
W.A. Halang and A.H. Frigeri

ANSI-C in Safety Critical Applications - Lessons-Learned from Software
Evaluation 209
A. Lindner

Applications

A Structured Approach to the Formal Certification of Safety of Computer
Aided Development Tools 221
P. Bertoli, A. Cimatti, F. Giunchiglia and P. Traverso

Applying Formal Methods in Industry - The UseGat Project 231
*S. Bologna, R. Bove, G. Dipoppa, G. Biondi, G. Mongardi, C. Porzia,
B.G. Mortensen and N. Kirkegaard*

Increasing System Safety for by-wire Applications in Vehicles by Using a
Time-Triggered Architecture 243
Th. Ringler, J. Steiner, R. Belschner and B. Hedenetz

Fault-Tolerant Communication in Large-Scale Manipulators 254
H.-D. Kochs, W. Geisselhardt, H. Hilmer and M. Lenord

Distributed Fault-Tolerant and Safety-Critical Application in Vehicles –
A Time-Triggered Approach 267
E. Dilger, T. Fuehrer and B. Müller

Model Checking Safety-Critical Software with SPIN: An Application to a
Railway Interlocking System 284
A. Cimatti, F. Giunchiglia, G. Mongardi, D. Romano, F. Torielli and P. Traverso

EURIS, a Specification Method for Distributed Interlockings 296
F.v.Dijk, W. Fokkink, G. Kolk, P.v.d.Ven and B.v.Vlijmen

Object Oriented Safety Analysis of an Extra High Voltage Substation Bay	306
<i>B. Nowicki and J. Górski</i>	

Formal Methods III - Petri Nets

Integration of Logical and Physical Properties of Embedded Systems by Use of Time Petri Nets	319
<i>F. Saglietti</i>	
Safety Verification of Software Using Structured Petri Nets	329
<i>K. Sacha</i>	

Reliability

Refinement of Safety-Related Hazards into Verifiable Code Assertions	345
<i>K. Wong and J. Joyce</i>	
A Conceptual Comparison of Two Commonly Used Safeguarding Principles	359
<i>B. Knegtering and A. Brombacher</i>	
A Holistic View on the Dependability of Software-Intensive Systems	369
<i>G. Sonneck, E. Schoitsch and L. Strigini</i>	
Verifying Integrity of Decision Diagrams	380
<i>R. Drechsler</i>	
Author Index	391

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