SAFECOMP'2006

The 25th International Conference on Computer Safety, Reliability and Security
26-29 September 2006, Gdansk, Poland

FINAL PROGRAM

The leading motto of SAFECOMP 2006 is:

New and Emerging IT-related Risks

ORGANIZED BY:

European Workshop
on Industrial Computer Systems
TC 7 (Safety, Reliability, Security)

Gdansk University of Technology

HTTP://KIO.PG.GDA.PL/SAFECOMP2006

About SAFECOMP

Since it was established in 1979 by the European Workshop on Industrial Computer Systems, Technical Committee 7 on Safety, Reliability and Security (EWICS TC7), SAFECOMP has contributed to the progress in high integrity applications of information technologies.

European Workshop
on Industrial Computer Systems

Technical Committee 7
on Safety, Reliability and Security

www.ewics.org

SAFECOMP is an annual event organised as a one-stream programme over two and a half days covering the state of the art, experience and new trends in the areas of safety, security and reliability of critical IT systems and applications. It provides a platform for knowledge and technology transfer for researchers, industry (suppliers, operators, users), regulators and certifiers of such systems. The conference will be preceded by a day of tutorials.

SAFECOMP provides ample opportunity to exchange insights and experiences on emerging methods and approaches and practical solutions across the borders of different disciplines.

Information on previous SAFECOMP editions can be found at **www.safecomp.org**.

The next, 26th SAFECOMP conference edition, will take place in Nuremberg, Germany (see **http://www11.informatik.uni-erlangen.de/safecomp2007/**)

SAFECOMP focuses on state-of-the-art and innovative approaches to risk assessment and management from the safety, security and reliability viewpoints. The scope includes IT systems and infrastructures considered critical within their present or emerging contexts. All aspects of dependability and survivability of critical computer-based systems and infrastructures are included. In particular, SAFECOMP emphasises multidisciplinary approaches to deal with the nature of complex critical IT systems and applications.

SAFECOMP welcomes original work neither published nor submitted elsewhere on both industrial and research experience, including case studies and pilots. Full paper submissions are subjected to a formal review process.

The SAFECOMP 2006 conference proceedings are published in the series Lecture Notes in Computer Science (LNCS), vol. 4166 by Springer-Verlag:
www.springeronline.com/lncs

Extended and revised versions of the best papers accepted for SAFECOMP are planned to be peer-reviewed and submitted to a Special Issue of the international journal Reliability Engineering and System Safety (RESS) published by Elsevier:
www.elsevier.com/locate/ress

SCOPE

Application and industrial sectors:

- Critical Systems and Infrastructures
- Grid and Web Services
- Aerospace and Avionics
- Automotive
- Banking and E-commerce
- Industrial Process Control
- e-Health
- Networking and Telecommunications
- Open Source Software
- Energy Distribution
- Railways
- Robotics
- Integrated Management of Borders
- Safety and Security Guidelines and Certification
- Safety and Security Standards

Research areas:

- Safety and Security Risk Assessment
- Trust and Assurance Cases
- Commercial-Off-The-Shelf
- Large Scale Authentication and Identity Management (including Smart Cards, Biometrics and RFIDs)
- Dependability Analysis and Modelling
- Dependability Benchmarking
- Design for Dependability
- Diversity
- Dependability Aspects of Evolution and Maintenance
- Formal Methods
- Human Factors
- Web-based Systems
- System Modelling and Engineering
- Qualitative and Quantitative Approaches for Dependability
- Dependable Structures and Design Patterns
- System of Systems
- Verification, Validation and Testing

INTERNATIONAL PROGRAMME COMMITTEE

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THE CONFERENCE CENTRE - HOLIDAY INN

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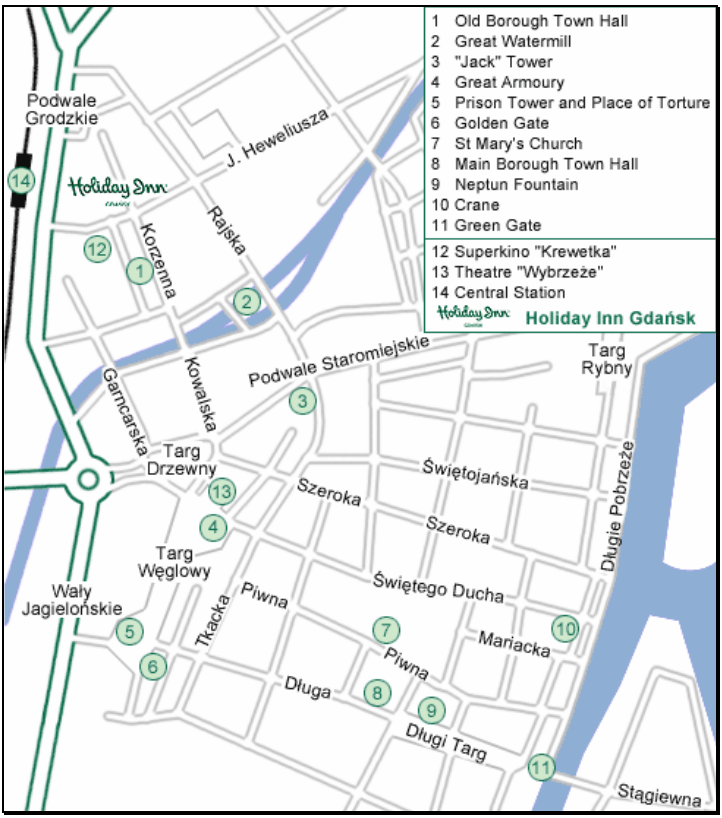
Holiday Inn is a 4-star hotel situated right next to the Gdansk Old City. It features a large and well equipped conference room and all facilities expected from an establishment of this class. The hotel is located in the commercial and cultural centre of the city. It is very easily accessible, regardless of which means of transportation were used to reach Gdansk.



CONFERENCE PROGRAMME OVERVIEW

September 26th Tuesday *Tutorials Day*	September 27th Wednesday *Conference Day 1*	September 28th Thursday *Conference Day 2*	September 29th Friday *Conference Day 3*
Tutorial Registration	Registration & Opening		
TUTORIALS I	**Keynote I**	**Keynote III**	**Keynote IV**
	Session I	**Session IV**	**Session IX**
	Session II	**Session V**	**Session X**
Lunch/Tutorial Registration	Lunch	Lunch	**Closing**
TUTORIALS II	**Keynote II**	**Session VI**	Lunch
	Session III	**Session VII**	
		Session VIII Posters	
Registration		Sponsors	
Welcome Reception	Guided tour and **Visit to the Museum of Amber**	**Conference Dinner**	

DETAILED PROGRAMME

26.09.2006 (Tuesday) - Tutorials Day

8:00 - 9:00	**Tutorial Registration**
9:00 - 13:00	**TUTORIALS I**
13:00 - 14:00	**Lunch/Tutorial Registration**
14:00 - 18:00	**TUTORIALS II**
18:00 - 19:00	**SAFECOMP 2006 Registration**
19:00 - 21:00	**SAFECOMP 2006 Welcome Reception**

27.09.2006 (Wednesday) - Conference Day 1

08:00 - 09:00	**Registration**
09:00 - 09:30	**Opening Session** Janusz Gorski (IPC Chair), Udo Voges (EWICS Chair)
09:30 - 10:15	**Keynote I: Cliff Jones – *University of Newcastle, UK*** Chair: Albrecht Weinert - *Fachhochschule Bochum, Germany*

DEPENDABILITY OF COMPUTER-BASED SYSTEMS: WHY INTERDISCIPLINARITY IS ESSENTIAL

The ubiquity of computers derives from their size, power and price. Their widespread use puts ever more demanding reliability requirements on hardware and software. However, their use by non-experts and their intrusion into everyone's (work) environment poses another sort of challenge: we must look at the dependability of systems far wider than hardware and software. "Computer-based" systems involve humans and are only dependable if all components play to their strengths and check the against failures resulting from the weaknesses of other components. Such observations led us to undertake a large research project which combined psychologists, statisticians and sociologists as well as computer scientists. I will argue strongly that such an interdisciplinary approach is essential. I'd like to report on the experience of this six year project and highlight a few of the outcomes as well as indicate what I see as some of the major challenges ahead.

Cliff Jones *has spent more of his career in industry than academia. Fifteen years in IBM saw, among other things, the creation with colleagues in Vienna of VDM which is one of the better known "formal methods". He subsequently became a professor at the University of Manchester then switched back into industry with Harlequin, he is now a Professor of Computing Science at the University of Newcastle. As well as formal methods, he also has strong research interests in interdisciplinary aspects of computer science and the history of computing. Currently his own major research*

project is the five university "Interdisciplinary Research Collaboration" on "Dependability of Computer-Based Systems" of which he is overall Project Director. Professor Cliff Jones is a Fellow of the Royal Academy of Engineering (FREng) and of the ACM. He is also Editor-in-Chief of the Formal Aspects of Computing journal.

10:15 - 10:40	**Coffee Break**

10:40 - 11:55 **Session I: Systems of Systems**

Chair: Udo Voges - *Forschungszentrum Karlsruhe GmbH, Germany*

- **SYSTEM OF SYSTEMS HAZARD ANALYSIS USING SIMULATION AND MACHINE LEARNING**
  - :: Robert Alexander – *University of York, UK*
  - :: Dimitar Kazakov – *University of York, UK*
  - :: Tim Kelly – *University of York, UK*
- **THROUGH THE DESCRIPTION OF ATTACKS: A MULTIDIMENSIONAL VIEW**
  - :: Igor Nai Fovino – *Joint Research Centre, Italy*
  - :: Marcelo Masera – *Joint Research Centre, Italy*
- **ON CERTAIN BEHAVIOR OF SCALE-FREE NETWORKS UNDER MALICIOUS ATTACKS**
  - :: Tomasz Gierszewski – *Gdansk University of Technology, Poland*
  - :: Wojciech Molisz – *Gdansk University of Technology, Poland*
  - :: Jacek Rak – *Gdansk University of Technology, Poland*

11:55 - 12:20	**Coffee Break**

12:20 - 13:35 **Session II: Security & Survivability Analysis**

Chair: Peter Daniel - *EWICS TC7 Security Subgroup Chair, UK*

- **VERIFYING A CHIPCARD BASED BIOMETRIC IDENTIFICATION PROTOCOL IN VSE**
  - :: Lassaad Cheikhrouhou – *German Research Center for Artificial Intelligence GmbH, Germany*
  - :: Georg Rock – *German Research Center for Artificial Intelligence GmbH, Germany*
  - :: Werner Stephan – *German Research Center for Artificial Intelligence GmbH, Germany*
  - :: Gunter Lassmann – *T-Systems Enterprise Services GmbH, Germany*
  - :: Matthias Schwan – *T-Systems Enterprise Services GmbH, Germany*
- **EXPLORING RESILIENCE TOWARDS RISKS IN EOPERATIONS IN THE OIL AND GAS INDUSTRY**
  - :: Felicjan Rydzak – *Wroclaw University of Technology, Poland*
  - :: Lars S. Breistrand – *Agder University College, Norway*
  - :: Finn Olav Sveen – *Agder University College, Norway*
  - :: Ying Qian – *Agder University College, Norway*
  - :: Jose J. Gonzalez – *Agder University College, Norway*
- **COMPUTER SYSTEM SURVIVABILITY MODELLING BY USING STOCHASTIC ACTIVITY NETWORK**
  - :: Eimantas Garsva – *Vilnius Gediminas Technical University, Lithuania*

13:35 - 14:35	**Lunch**

14:35 - 15:20	**Keynote II: Yves Paindaveine – *Scientific Officer, IST Programme, DG INFSO, European Commission*** Chair: Francesca Saglietti - *University of Erlangen-Nuremberg, Germany*

SECURITY, DEPENDABILITY AND TRUST - TOWARDS THE 7TH FRAMEWORK PROGRAM

Abstract: The objective of ICT research under the 7th Research Framework Program (FP7) is to improve the competitiveness of European industry and enable Europe to master and shape the future developments of ICT so that the demands of its society and economy are met. Activities will have to strengthen Europe's scientific and technology base, contribute to securing its global leadership in ICT, help drive and stimulate innovation and ensure that ICT progress is rapidly transformed into benefits for Europe's citizens, businesses, industry and governments.

The first ICT work program is currently under preparation and will likely have a budget of around 2 billion EUR for the next 2 years. The work program is expected to be structured around seven major key research challenges, driven either by industrial and technological objectives or by socio-economic goals. In this keynote, we will briefly present these key challenges. We will then focus on those of direct interest to the security and dependability community at large and to the SAFECOMP audience in particular. In doing so, we will deliver a few key messages on the need of integrating interdisciplinary research groups working in security, dependability and trust with those working in networks and services. Among the topics expected to be covered in the first ICT-FP7 work program are included: the security and resilience in network infrastructures; improvements to security of network and service infrastructures in order to favour an efficient take up of business critical applications and to increase consumer confidence in networked transactions and applications; development of a cost-effective and efficient critical ICT-based infrastructure protection capability in Europe for ensuring integrity, availability and continuity of service supply. Building a secure and trusted "Future Internet" and interconnected experimental test-beds addressing novel distributed, reconfigurable and secure protocol architectures and their validation are two additional research objectives of interest to the SAFECOMP audience that are also expected to be supported in the first ICT-FP7 work program.

Speaker's Bio: ***Yves Paindaveine*** *is a microelectronics and computer science engineer by education. While at the Open Software Foundation Research Institute, he worked, among others, on distributed systems and security. He joined the European Commission in 1998 as a scientific officer for RTD projects dealing with health informatics (IST Programme). Later on, he joined the Unit "ICT for trust and security" headed by Jacques Bus, where he is working on network security and dependability.*

15:20 - 15:45	**Coffee Break**

15:45 - 17:00	**Session III: Nuclear Safety & Application of Standards** Chair: Gerd Rabe - *TÜV NORD SysTec GmbH & Co. KG, Germany*

- **SOFTWARE SAFETY LIFECYCLE AND METHODS OF PROGRAMMABLE ELECTRONIC SAFETY SYSTEM FOR NUCLEAR POWER PLANT**
  - :: Jang-Soo Lee – *Korea Atomic Energy Research Institute, South Korea*
  - :: Arndt Lindner – *Institut fuer Sicherheitstechnologie, Germany*
  - :: Jong-Gyun Choi – *Korea Atomic Energy Research Institute, South Korea*
  - :: Horst Miedl – *Institut fuer Sicherheitstechnologie, Germany*
  - :: Kee-Choon Kwon – *Korea Atomic Energy Research Institute, South Korea*
- **REGULATORY SOFTWARE CONFIGURATION MANAGEMENT SYSTEM DESIGN**
  - :: I-Hsin Chou – *Institute of Nuclear Energy Research / Yuan-Ze University, Taiwan*
  - :: Chin-Feng Fan – *Yuan-Ze University, Taiwan*
- **GAINING CONFIDENCE IN THE SOFTWARE DEVELOPMENT PROCESS USING EXPERT SYSTEMS**
  - :: Mario Brito – *University of Bristol, UK*
  - :: John May – *University of Bristol, UK*

20:00 - 22:00	**Guided tour (Gdansk Old Town)** **Visit to the Museum of Amber**

28.09.2006 (Thursday) - Conference Day 2

9:00 - 9:45	**Keynote III: Jens Braband – *Siemens AG, Transportation Systems*** Chair: Udo Voges - *Forschungszentrum Karlsruhe GmbH, Germany*

SAFETY ANALYSIS BASED ON IEC 61508 - LESSONS LEARNED AND WAY FORWARD

Since its publication IEC 61508 has gained widespread use and approval, however experience has shown that there are many areas where questions occur and where the standard can be improved. This presentation focuses on a simple example PES system and tries to highlight problems and potential pifalls in the application of IEC 61508, addressing also proposals which have been made recently during the maintenance. Particular topics addressed include terminology, risk analysis, operation modes, safety integrity levels, safety criticality, properties and, last but not least, documentation.

Jens Braband *received a Diploma in Mathematics in 1987 and a doctorate degree in 1992 for a thesis on stochastic modelling, both from TU Braunschweig in Germany. Jens joined the Rail Automation branch of Siemens Transportation Systems Group in 1993 as a safety expert. From 1993-1997 he was project manager of the EURORADIO project and safety manager for ERTMS. Since 2002 he is Head of the R&D Integrity department of the Rail Automation group. Since 2005 he is member of the UNIFE Safety Assurance group and also nominated as a safety*

expert to the European Railway Agency (ERA). He is accredited as an independent safety assessor (ISA) by the German railway safety authority, the Eisenbahn-Bundesamt (EBA). He has been convenor and member of several CENELEC and IEC standardisation committees. Since 2001 Jens gives regular lectures on system safety topics at the Institute of Railway Systems Engineering and Transportation Safety (IfEV) of the TU Braunschweig. In 2004 he received a honorary professorship for "Risk and Safety Analysis of Transportation Systems". Since 2005 he coordinates the Rail Automation Graduate School, a Siemens PhD programme dedicated to research in the rail automation sector, currently consisting of 12 scholarships.

9:45 - 11:00	**Session IV: Formal Approaches** Chair: Robin Bloomfield – *City University, UK*

- **RETRENCHMENT, AND THE GENERATION OF FAULT TREES FOR STATIC, DYNAMIC AND CYCLIC SYSTEMS**
  - :: Richard Banach – *University of Manchester, UK*
  - :: Marco Bozzano – *ITC-IRST, Italy*
- **STEPWISE DEVELOPMENT OF SECURE SYSTEMS**
  - :: Thomas Santen – *Technical University of Berlin, Germany*
- **COMPONENT-BASED HAZARD ANALYSIS: OPTIMAL DESIGNS, PRODUCT LINES, AND ONLINE-RECONFIGURATION**
  - :: Holger Giese – *University of Paderborn, Germany*
  - :: Matthias Tichy – *University of Paderborn, Germany*

11:00 - 11:25	**Coffee Break**

12:20 - 13:35	**Session V: Networks Dependability** Chair: Ming-Yuh Huang - *Boeing Phantom Works, USA*

- **NEW VOIP TRAFFIC SECURITY SCHEME WITH DIGITAL WATERMARKING**
  - :: Wojciech Mazurczyk – *Warsaw University of Technology, Poland*
  - :: Zbigniew Kotulski – *Warsaw University of Technology, Poland*
- **ANALYSIS OF BOTH FILTERING AND ALERTING POLICY ANOMALIES IN SINGLE-COMPONENT SETUPS**
  - :: Joaquin Garcia-Alfaro – *ENST-Bretagne, France / dEIC-UAB, Spain*
  - :: Frederic Cuppens – *ENST-Bretagne, France*
  - :: Nora Cuppens-Boulahia – *ENST-Bretagne, France*
- **USING GROUP OVERLAPPING TO PROTECT SERVER FROM ATTACK IN GRID COMPUTING**
  - :: Byung-Ryong Kim – *DongBang Data Technology Co. Ltd, South Korea*

12:40 - 13:40	**Lunch**

13:40 - 14:55	**Session VI: Coping with Change & Mobility** Chair: Erwin Schoitsch - *ARC Seibersdorf Research, Austria*

- **THE ROLE OF SITUATION AWARENESS IN ASSURING SAFETY OF AUTONOMOUS VEHICLES**
  - :: Andrzej Wardzinski – *PROKOM Software, Poland*
- **DEMONSTRATION OF SAFETY IN HEALTHCARE ORGANISATIONS**
  - :: Mark-Alexander Sujan – *University of York, UK*
  - :: Michael Harrison – *University of Newcastle, UK*
  - :: Pauline Pearson – *University of Newcastle, UK*
  - :: Alison Steven – *University of Newcastle, UK*
  - :: Susan Vernon – *University of Newcastle, UK*
- **HEALTHCARE SYSTEM ARCHITECTURE, ECONOMIC VALUE, AND POLICY MODELS IN LARGE-SCALE WIRELESS SENSOR NETWORKS**
  - :: Won Jay Song – *University of Virginia, USA*
  - :: Moon Kyo Cho – *Information and Communications University, South Korea*
  - :: Im Sook Ha – *Information and Communications University, South Korea*
  - :: Mun Kee Choi – *Information and Communications University, South Korea*

14:55 - 15:20	**Coffee Break**

15:20 - 16:35	**Session VII: Safety Analysis & Assessment** Chair: Odd Nordland – *SINTEF, Norway*

- **ASSESSMENT OF HAZARD IDENTIFICATION METHODS FOR THE AUTOMOTIVE DOMAIN**
  - :: Fredrik Torner – *Volvo Car Corporation, Sweden*
  - :: Per Johannessen – *Volvo Car Corporation, Sweden*
  - :: Peter Ohman – *Chalmers University of Technology, Sweden*
- **A TOOL FOR DATABUS SAFETY ANALYSIS USING FAULT INJECTION**
  - :: Dawid Trawczynski – *Warsaw University of Technology, Poland*
  - :: Janusz Sosnowski – *Warsaw University of Technology, Poland*
  - :: Janusz Zalewski – *Florida Gulf Coast University, USA*
- **TOWARDS A UNIFIED MODEL-BASED SAFETY ASSESSMENT**
  - :: Thomas Peikenkamp – *Kuratorium OFFIS e.V., Germany*
  - :: Antonella Cavallo – *Alenia Aeronautica S.p.A., Italy*
  - :: Laura Valacca – *Societa' Italiana Avionica S.p.A., Italy*
  - :: Eckard Bode – *Kuratorium OFFIS e.V., Germany*
  - :: Matthias Pretzer – *Kuratorium OFFIS e.V., Germany*
  - :: Moritz Hahn – *Kuratorium OFFIS e.V., Germany*

16:35 - 17:00	**Coffee Break**

17:00 - 17:45	**Session VIII: Poster Session**

- **RELIABILITY ANALYSIS OF RESILIENT PACKET RINGS**
  - :: Piotr Cholda – *AGH University of Science and Technology, Poland*
  - :: Jerzy Domzal – *AGH University of Science and Technology, Poland*
  - :: Andrzej Jajszczyk – *AGH University of Science and Technology, Poland*
  - :: Krzysztof Wajda – *AGH University of Science and Technology, Poland*
- **EXPERIENCES WITH THE DESIGN OF A RUN-TIME CHECK**
  - :: Meine van der Meulen – *City University, London, UK*
  - :: Miguel Revilla – *University of Valladolid, Spain*
- **DEVELOPMENT OF AN INTEGRATED, RISK-BASED PLATFORM FOR INFORMATION AND E-SERVICES SECURITY**
  - :: Andrzej Bialas – *Institute of Control Systems, Poland*
- **USING AGENT-BASED MODELLING APPROACHES TO SUPPORT THE DEVELOPMENT OF SAFETY POLICY FOR SYSTEMS OF SYSTEMS**
  - :: Martin Hall-May – *University of York, UK*
  - :: Tim Kelly – *University of York, UK*
- **VERIFICATION OF AUTOMATIC TRAIN PROTECTION SYSTEMS WITH RTCP-NETS**
  - :: Marcin Szpyrka – *AGH University of Science and Technology, Poland*
  - :: Tomasz Szmuc – *AGH University of Science and Technology, Poland*

18:00 - 19:00	**Sponsors presentations (optional)**
20:00 - 23:00	**Conference Dinner**

29.09.2006 (Friday) - Conference Day 3

9:00 - 9:45	**Keynote IV: Ming-Yuh Huang – *Boeing Phantom Works, Seattle, USA*** Chair: Janusz Gorski – *Gdansk University of Technology, Poland*

TRUE CHALLENGES OF 21ST CENTURY INFORMATION SECURITY R&D

Today's information security is no longer about keeping people out; it's about letting people in - the right people, the right time, to the right resources. Modern social and business practices require us to work closely together via access to the computing infrastructure and the Internet. Once connected, each needs to be brought directly to the right resources. In this respect, information security today is the key "business-enabler" that propels the next-generation paradigm shift. Traditional way of looking at information security as a protecting and prohibiting technology is out of date. Boeing operates one of the largest computing infrastructures in the world executing complex global manufacturing, distributed collaborative engineering, massive virtual enterprise integration, as well as building highly complex large-scale defense and government systems. In this

context, I like to share our perspectives on 21st century information security R&D issues and directions - what's catch-up vs. what's enabling, what's relevant vs. what's irrelevant.

Ming-Yuh Huang *(who goes by "Huang") is a Boeing Technical Fellow responsible for managing Boeing's Strategic Information Assurance R&D Program to support the corporate enterprise as well as a wide array of large-scale commercial/military programs. Before joining Boeing in 1990, Huang was with DEC Research Artificial Intelligence Technology Center leading an expert system effort called ESSENSE (Expert System for Service Network Security) which led to one of world's earliest intrusion detection products - POLYCENTER ID. While with Boeing, Huang had led DARPA intrusion detection R&D project, co-authored IETF standard IDMEF Intrusion Detection Systems communication protocol in collaboration with IBM Research and US Air Force Information Warfare Center. He was the program-co-chair of RAID-1999 (International Symposium on Recent Advances in Intrusion Detection) at Purdue, and the general-chair of RAID-2005 at Seattle. He was also the program-chair of NATO Advanced Research Workshop "Cyber Security and Defense: Research Issues" at Gdansk, Poland in 2005, and the program-chair of SADFE-2005 (Systematic Approaches to Digital Forensic Engineering) at Taipei, Taiwan. Huang was twice invited by European Commission to help defining US/EU information security R&D collaboration framework. Huang received his B.S. in Physics in 1979, and did MS and Ph.D. study at University of Oregon Computer Science Department.*

9:45 - 11:00 **Session IX: 6th FP Integrated Project DECOS**

Chair: Meine van der Meulen - *MX.Systems, The Netherlands*

- **CHECKING SCADE MODELS FOR CORRECT USAGE OF PHYSICAL UNITS**
  - Rupert Schlick – *ARC Seibersdorf research, Austria*
  - Wolfgang Herzner – *ARC Seibersdorf research, Austria*
  - Thierry Le Sergent – *Esterel Technologies, France*

- **VALIDATION & CERTIFICATION OF SAFETY-CRITICAL EMBEDDED SYSTEMS THE DECOS TEST BENCH**
  - Erwin Schoitsch – *ARC Seibersdorf research, Austria*
  - Egbert Althammer – *ARC Seibersdorf research, Austria*
  - Henrik Eriksson – *Swedish National Testing and Research Institute (SP), Sweden*
  - Jonny Vinter – *Swedish National Testing and Research Institute (SP), Sweden*
  - Laszlo Gonczy – *Budapest University of Technology and Economics, Hungary*
  - Andras Pataricza – *Budapest University of Technology and Economics, Hungary*
  - Gjorgy Csertan – *Budapest University of Technology and Economics, Hungary*

- **ENCAPSULATING APPLICATION SUBSYSTEMS USING THE DECOS CORE OS**
  - Martin Schlager – *TTTech Computertechnik AG, Austria*
  - Wolfgang Herzner – *ARC Seibersdorf research, Austria*
  - Andreas Wolf – *TTTech Computertechnik AG, Austria*
  - Oliver Gruendonner – *TTTech Computertechnik AG, Austria*
  - Maximilian Rosenblattl – *TTTech Computertechnik AG, Austria*
  - Erwin Erkinger – *TTTech Computertechnik AG, Austria*

11:00 - 11:25 **Coffee Break**

11:25 - 12:40	**Session X: Modelling** Chair: Robert Genser – *OeGART, Austria*

- **MODELING THE RAILWAY CONTROL DOMAIN RIGOROUSLY WITH A UML 2.0 PROFILE**
  - :: Kirsten Berkenkotter – *University of Bremen, Germany*
  - :: Ulrich Hannemann – *University of Bremen, Germany*
- **ACCESS CONTROL COHERENCE OF INFORMATION SYSTEMS BASED ON SECURITY CONSTRAINTS**
  - :: Aneta Poniszewska-Maranda – *Technical University of Lodz, Poland*
- **AUTOMATIC TEST DATA GENERATION BY MULTI-OBJECTIVE OPTIMISATION**
  - :: Norbert Oster – *University of Erlangen-Nuremberg, Germany*
  - :: Francesca Saglietti – *University of Erlangen-Nuremberg, Germany*

12:40 - 13:10	**Invitation to SAFECOMP 2007** Francesca Saglietti - *University of Erlangen-Nuremberg, Germany*
13:10 - 13:20	**Closing** Janusz Gorski – *Gdansk University of Technology* Aleksander Jarzebowicz - *Gdansk University of Technology*
13:20 - 14:20	**Lunch**

TUTORIALS

September 26 (Tuesday) is planned as a tutorials day.

9:00 - 13:00	**Tutorial 1** **Computer Support for the Information Security Management Systems (ISMS)**	**Tutorial 2** **Cyber Security of Electric Power Infrastructure**	**Tutorial 3** **Secret sharing schemes with applications to nuclear command and control.**	**DECOS/ERCIM Workshop**
14:00 - 18:00	**Tutorial 4** **Trust-IT: a method and tools for justifying trust in IT systems and infrastructures**	**Tutorial 5** **Technological Risk: Risk Underpinnings in Social Technologies**		

Tutorial 1: Computer Support for the Information Security Management Systems (ISMS)

Andrzej Bialas, Krzysztof Lisek - Institute of Control Systems, Chorzow, Poland

Abstract:
The aim of the tutorial is to provide the participants with theoretical and practical knowledge on:

- information security management compliant with the ISMS
- high/low level risk analysis
- identification and valuation of the organization's assets
- computer tools supporting information security management processes

The schedule of the tutorial includes:

1. Introduction: Information security management system based on the business risk analysis approach compliant with the BS 7799/ISO/IEC 17799 (planned ISO/IEC 27001/27002) - 1 hour
2. Computer support for the ISMS - introduction to the SecFrame tool - 1 hour
3. e-Gadget company - a case study - 2 hours

Tutorial 2: Cyber Security of Electric Power Infrastructure

Zdzislaw Zurakowski – private consultant, Poland

Abstract:
Towards the end of the 20th century electric power infrastructure emerged as one of the most critical infrastructure in the sense that all other critical and vital infrastructures depend on reliable electricity supply. It is also considered as one of the most vulnerable to physical and cyber attack. Present-day electric power systems (EPSs), which are physical part of electric power infrastructure, are complex and technologically advanced systems. Assuring cyber security of these systems it is difficult interdisciplinary task.
The tutorial presents the physical structure of an EPS, organizational structure and issues connected with liberalisation and internationalisation of the sector, main concepts connected with an EPS control and operation, telecommunication network integrated with an EPS, an EPS threats, vulnerabilities and risks, examples of cyber attack scenarios, current research and practice in assuring EPS cyber security. In this context the tutorial also addresses issues of education and training.

Tutorial 3: Secret sharing schemes with applications to nuclear command and control. A case study in security engineering applied to building dependable, distributed systems.

Kamil Kulesza – University of Cambridge and Institute of Fundamental Technological Research, Polish Academy of Sciences in Warsaw, Poland.

Abstract:
The objective of the tutorial is to show how to design and implement systems that not only work in the presence of random errors and mistakes, a task often informally called as programming Murphy's computer, but also in the face of an intelligent and malicious adversary. Such an adversary is trying to ensure that things fail in the worst possible way at the worst possible time. In computer security community such an assignment is often referred as programming Satan's computer. The tutorial presents the interplay between various fields, from mathematics and information theory underlying secret sharing schemes, through engineering principles for robust system design, to soft issues (e.g. human factors). All above fields contribute to various levels of a complex system and interact with each other. Apart from sound theoretical foundations, such systems have proven themselves in practice, since there has not been accidental/unauthorized use of nuclear weapons, so far. We use secret sharing schemes and their applications as a vehicle to show principles of security engineering in operation.

Tutorial 4: Trust-IT: a method and tools for justifying trust in IT systems and infrastructures

Jakub Miler – Gdansk University of Technology, Poland

Abstract:
The tutorial aims at familiarisation with the concept of the trust case and its supporting tools, broadening the perception of its application scope as well as increasing awareness of the participant's role in a trust-building process. A trust case development scenario derived from experiences in e-health will be presented. This scenario involves collaboration of stakeholders through internet-enabled tools, context modelling, evidence integration and wide scope of trust objectives other than safety.
The tutorial covers:

- methodology defining the syntax, semantics and typical trust case design patterns,
- process defining how trust cases are developed, maintained and used,
- system supporting collaborative development and maintenance of trust cases.

The tutorial includes a case study - a collaborative on-line development of a trust case for an e-health system using an internet-based supporting tool.

Tutorial 5: Technological Risk: Risk Underpinnings in Social Technologies

Massimo Felici – School of Informatics of the University of Edinburgh, UK

Abstract:
This tutorial concerns risk of technology. Multidisciplinary accounts of risk allow a revision of different case studies. The review highlights diverse risk underpinnings: how risk emerges from information infrastructures; risk of technological evolution; how social aspects (e.g., social connectivity) affect risk perception. The tutorial highlights technological risk according to multidisciplinary viewpoints, which extend and inform risk analysis. The tutorial addresses researchers and practitioners, who would like to acquire a multidisciplinary background on technological risk. The material covered blends together recent research results on system dependability. The tutorial builds on the research results of the (6-year) Interdisciplinary Research Collaboration in Dependability (DIRC) - **http://www.dirc.org.uk/**

DECOS/ERCIM Workshop on Dependable Embedded Systems

Chairs: ***Erwin Schoitsch***, ***Amund Skavhaug***

Description:

The Workshop will give an overview on new technologies and achievements for (networked) dependable embedded systems and "Systems-of-Systems" architectures as e.g. developed in the **EU-IST-FP6-511764 Integrated Project DECOS** ("Dependable Embedded Components and Systems") and on related work from members of the ERCIM Working Group on "Dependable Embedded Systems (DES)".

DECOS workshop is planned to include:

- New architectural paradigms for dependable embedded systems (integrated approach)
- Achievements of the DECOS project (core services and high level services)
- Report on TT-vision systems for autonomous vehicles (experiences from the DARPA Grand Challenge)
- First Experience Reports from DECOS demonstrators (automotive, aerospace, industrial control)
- The "Embedded Systems Lab" at NTNU (Norwegian University of Technology, Trondheim)
- Experience Reports and ongoing work of the ERCIM and EWICS TC7 Working Groups in the area of highly dependable systems (design, development, maintenance, education&training), including hardware as well as software and systems aspects
- Short demonstrations and video-clips

Attendance to this workshop, which is sponsored and co-organized by the DECOS project (EU-IST-FP6 511764), is free for all interested participants from the DECOS Interest Group, ERCIM (European Research Consortium for Informatics and Mathematics), EWICS TC7 and all interested SAFECOMP participants.

EVENTS

Apart from the scientific sessions, SAFECOMP 2006 offers to its participants a number of social events. Also, a meeting of the EWICS Technical Committee 7 and a meeting of RESIST project will be held as related events to the conference.

Conference welcome reception will take place on Tuesday, September 26th and it is supposed to familiarise participants of SAFECOMP 2006. The welcome reception will take place in Holiday Inn (conference venue hotel).

For the evening on Wednesday, September 27th a **visit to the Museum of Amber** is arranged. The museum is located in the Old Town Barbican and presents raw amber with inclusions, amber jewellery and examples of unique amber craftsmanship. The amber is viewed in different aspects: geological, physical, chemical and biological over the whole time of its evolution and use. The multimedia exposition explains amber excavation, its trading routes as well as the scientific, artistic, medical and magical use of amber. The exposition occupies all floors of the Barbican Prison Tower. The visit to the museum will be accompanied with a guided tour around the Gdansk Old Town.

SAFECOMP 2006 Conference Dinner is planned for Thursday evening (September 28th). The dinner will take place inside the Artus Court of Gdansk.

This is probably the most representative room in Gdansk Old Town. The Artus Court was built in 15th century for the purpose of meetings of rich Gdansk patricians who wished to refer to the tradition of King Athur's Knights. The gothic-style Artus Court is decorated with numerous paintings, sculptures, armours and ship models. Many times, this room has guested kings and princes welcomed by Gdansk authorities and is still used for receptions and banquets when heads of states visit Gdansk.

SAFECOMP 2006 Conference Dinner is planned as a served dinner and will be accompanied with live music.

EWICS TC7 meeting and **RESIST project meeting** preliminary agendas assume a two-day event on September 25th and 26th (Monday and Tuesday). The venue of the meeting will be the building of the Faculty of Electronics, Telecommunications and Informatics located within the campus of the Gdansk University of Technology (15 minutes by tram from the Holiday Inn Hotel).

Detailed agenda of EWICS meeting is available at EWICS website **www.ewics.org**.

About Gdańsk

Gdansk is the Polish maritime capital with the population nearing half a million. Lying on the southern coast of the Baltic Sea, together with Sopot and Gdynia Gdansk forms the Tri-City. Widely open to the world, Gdansk has always been a European city to the core. "Nec temere, nec timide", i.e. fearlessly but reasonably, is its motto.

A thousand years old Gdansk is one of the most unique tourism sites in Poland, even though almost entire Old City has been reconstructed after the World War II. Being in Gdansk, you should definitely not miss:

- The Royal Route - Long Street and Long Market between the Golden Gate and the Green Gate, where almost every house has its own, rich history. The sites include the Hall of the Main City, the Artus Court, and the symbol of Gdansk - the Neptune Fountain.
- St Mary's Church – the largest brick church in the world. Its tower of 77.6m is open to visitors.
- St Mary's Street - Beyond any doubt one of the most beautiful parts of Gdansk,
- The Crane over the Motlawa River,
- Oliwa Cathedral and Park,
- Sopot and its unique longest wooden pier in Europe (with total length of 515m).

Gdansk cultivates its centuries-long tradition in the specific trade of amber processing, and its nickname of the world capital of amber is well earned. We encourage you to visit numerous exclusive galleries and tiny jewellery shops located in the beautiful houses of the Old Town.

It is Gdansk that witnessed the birth of the first Independent Trade Union, "Solidarity" led by Lech Walesa - the future winner of the Nobel peace prize and first President of the III Republic of Poland. The mass Solidarity strikes at the Gdansk Shipyard in 1980 and signing the famous August Agreement triggered the avalanche that toppled communism in Europe.

Gdansk is one of the most "green" cities in Poland. From the west it is surrounded by the picturesque Tri-City Landscape Park and the hills and lakes of the Kashubian Switzerland district. Gdansk offers many outdoor attractions such as the beautifully located zoological garden, the famous Oliwa Park with its ancient trees, the nature reserves of the Sobieszewo Island and 23 kilometres of clean beaches.

Information partially from Gdansk official site

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CONFERENCE SECRETARIAT

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