Fraunhofer VVS

Future Security
Security Research Conference

FRAUNHOFER GROUP FOR DEFENSE AND SECURITY VVS

10TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 15–17, 2015

PROGRAM

INTRODUCTION

Free but secure

Great social, scientific, and technical efforts are needed to make this statement a reality. In liberal societies especially in industrialized nations, human activities are numerous and closely intertwined. Complex technical, business and social infrastructures, whose safety and security must be ensured, are the essential basis for this. How can you ensure individual people and society as a whole are safe and secure without abridging the freedom of the individual?

An answer can be found only in the cross-discipline collaboration of researchers from the natural sciences, engineering, human, and social sciences. Ensuring safety and security in a socio-economic and socio-technical context refers to complex systems and requires a holistic perspective to integratively merge contributions from various disciplines.

The Conference **"Future Security"** is an interdisciplinary, international exchange platform for scientists and experts from research, industry and authorities and provides direct insight into current security research projects.

VENUE

Permanent Representation of North Rhine-Westphalia to the Federal Republic of Germany
Hiroshimastrasse 12-16
10785 Berlin-Tiergarten, Germany

FOREWORD

BY THE CHAIRMAN OF THE 10TH FUTURE SECURITY CONFERENCE

Welcome to the Future Security Research Conference 2015.

Security research is primarily research for the benefit of society. Security research is dealing with vulnerabilities and risks – terrorist attacks, natural hazards, crime or accidents – to society, especially in an urban environment, and critical infrastructures like transport, energy, food supply, information technologies, etc. Therefore, security research deals with methods and technologies to analyze, and minimize the risks, to improve crisis management, and to increase the resilience of infrastructures and society. In doing so, ensuring privacy and freedom is essential.

The institutes of the Fraunhofer Group for Defense and Security VVS have organized the annual Future Security Conference since 2006. 2015 marks the 10th anniversary of the series. This year, the Future Security Conference is organized by the Fraunhofer Institute of Optronics, System Technologies and Image Exploitation IOSB. The conference series has been established as an important platform for the discussion of future security research needs. It is an interdisciplinary international exchange platform for scientists and experts from research, industry, and authorities, and it provides direct insight into current security research projects.

We are proud to welcome renowned participants from all over the world as our guests. Many thanks go to the Permanent Representation of North Rhine-Westphalia in Berlin, which hosts the conference for the fourth time now. I would also like to thank the Program Committee, who peer-reviewed all submitted papers. Thank you to all of you who are attending this conference and contributing to its success.

I am looking forward to a successful and inspiring conference.

Jürgen Beyerer
Chairman of the Future Security 2015

WELCOME MESSAGE

Welcome message
from State Secretary at the Federal Ministry of Defence, Dr. Katrin Suder

Celebrating ten years of "Future Security Conferences" is an opportunity to link future prospects to a look back at the past. When the Conferences were first established, the international security landscape was heavily dominated by the threat of international terrorism: 9/11, and the Madrid and London bombings underscored the potentially catastrophic and disruptive effects terrorist groups could have on Western societies. This raised some hard questions and challenged conventional wisdom on security affairs.

Perhaps unsurprisingly, the "Future Security Conference" was launched around that time, under joint patronage from the Federal Ministry of Defence and the Federal Ministry of Education and Research. At the time, some considered this to be a daring step – linking defence research with (civilian) security research was still largely uncharted territory.

Ten years later, the international security environment has further evolved. Some features remain, while others have newly emerged (or reemerged) – including asymmetric conflicts, health pandemics and hybrid conflicts amplified by the social media revolution. All in all, the international security environment has grown considerably more multi-faceted, complex and thus more challenging. Indifference is not an option.

Germany has been increasingly willing and able to shoulder more international responsibility – not at least as our international allies and partners demand our active involvement in securing international peace and stability. Yet, to meet today's and tomorrow's security challenges, we need to invest in both our human and material resources. In this endeavour, technology can be a key-enabler to ensure and increase our effectiveness. This is especially true as information technology increasingly becomes a dominant feature of modern societies.

Against this background, I hope this conference will provide a stimulating, thought-provoking platform, on which today's and tomorrow's security themes are discussed and new and innovative solutions are developed.

Welcome message
from the Federal Ministry of Education and Research, Prof. Dr. Wolf-Dieter Lukas

For almost a decade the Future Security Conference has been an indispensable platform for the international and interdisciplinary exchange of information in this field. It brings together researchers from around the world as well as experts from industry and end user groups who come together to discuss current developments in the area of civil security research.
In January of this year, 17 people were killed in terrorist attacks in France. In Germany a cycle race in Frankfurt and various other major events had to be canceled at short notice this year because of bomb threats.
This does not only remind us of the current threat level, but also shows that uncertainties and insecurities can seriously limit our freedom and that threats do not stop at national borders.
Many security measures are only effective if they are implemented transnationally. Security is an international concern, therefore forming international research alliances and helping to shape the European security architecture is a key issue for security research.
The motto for this year's Future Security Conference is „Free but secure". The Fraunhofer-Gesellschaft thus is highlighting the complex balance between security and freedom, and between national and international solutions to security issues.
I hope that the Conference will inspire new insights and interesting discussions.

PROGRAM COMMITTEE

- Prof. Dr. Oliver Ambacher, Fraunhofer IAF
- Dr. Richard Arning, SES Satellite Leasing Ltd
- Prof. Dr.-Ing. habil. Jürgen Beyerer, Fraunhofer IOSB
- Dr. Antje Bierwisch, Fraunhofer ISI
- Gerhard Coors, Federal Ministry for Defence BMVg
- Prof. Dr. Claudia Eckert, Fraunhofer AISEC
- Prof. Dr. Peter Elsner, Fraunhofer ICT
- Prof. Dr. Joachim Ender, Fraunhofer FHR
- Dr. E. Anders Eriksson, FOI – Swedish Defence Research Agency
- Achim Friedl, Federal Ministry of the Interior BMI
- Dr. Ludwig Frühauf, German Police University
- Dr. Jürgen Geisler, Fraunhofer IOSB
- Prof. Dr. Hans-Joachim Grallert, Fraunhofer HHI
- Dr. Matthias Grüne, Fraunhofer INT
- Prof. Dr. Albert Heuberger, Fraunhofer IIS
- Dietmar Hilke, Thales
- Dr. Rüdiger Klein, Fraunhofer IAIS
- Andreas Könen, Federal Office for Information Security BSI
- Rüdiger Koppe, Airbus Defence and Space
- Dr. Horst Krause, Fraunhofer ICT
- Prof. Dr. Dr. Michael Lauster, Fraunhofer INT
- Dr. Tobias Leismann, Fraunhofer EMI
- Tijen-Khoen Liem, European Commission
- Peter Löffler, Siemens Switzerland Ltd.
- Prof. Dr. Peter Martini, Fraunhofer FKIE
- Sadhbh McCarthy, Centre for Irish and European Security CIES
- Dr. Andreas Meissner, Fraunhofer IOSB
- Dr. Karsten Michael, Federal Office of Civil Protection and Disaster Assistance BBK

- Prof. Dr. Jörn Müller-Quade, Karlsruhe Institute of Technology KIT
- Dr. Harald Olschock, Association of German Private Security Industry (BDSW)
- Dr. Stefan Pickl, University of the German Federal Armed Forces - UBw Munich
- Dr. Wolfgang Rosenstock, Fraunhofer INT
- Prof. Dr. Christopher Schlick, Fraunhofer FKIE
- Prof. Dr. Viola Schmid, TU Darmstadt
- Gunther Schwarz, BDSV, Airbus Defence and Space
- Dr. Michael Suhrke, Fraunhofer INT
- Prof. Dr. Klaus Thoma, Fraunhofer EMI
- Thomas Tscherisch, Deutsche Telekom AG
- Prof. Dr. Markus Ullmann, Federal Office for Information Security BSI
- Dr. Marcel van Berlo, TNO
- Norbert Weber, Federal Ministry of Defence BMVg
- Dr. Karin Wey, VDI Technologiezentrum GmbH

TIMETABLE

TUESDAY, SEPTEMBER 15, 2015

Time \ Room	Europasaal	Saal Westfalen	Saal Rheinland
9:00 – 9:45	**Welcome and Opening** Jürgen Beyerer (Fraunhofer IOSB / VVS) Katrin Suder (German Federal Ministry of Defence BMVg) Wolf-Dieter Lukas (German Federal Ministry of Education and Research BMBF) Volker Meier (Permanent Representation of NRW to the Federal Republic of Germany) Georg Wilhelm Adamowitsch (Federation of German Security & Defence Industries BDSV)		
9:45 – 10:15	**Keynote** **Privacy and Data Protection - An EU perspective** Udo Helmbrecht (European Union Agency for Network and Information Security ENISA)		
10:15 – 11:45	**Panel** **Do Law, Humanities and Social Sciences need more Pragmatism to keep up with the High Speed of Technological Developments?** Moderator: Klaus Vieweg (University of Erlangen-Nürnberg) Sabine Leutheusser-Schnarrenberger (Former German Federal Minister of Justice) Marina Martínez-García (Spanish Office of Science and Technology) Stefan Weisgerber (German Institute for Standardization DIN) Martina Link (German Federal Criminal Police Office - Bundeskriminalamt BKA) Heinz Gerhäuser (Fraunhofer IIS)		
11:45 – 13:10	**Networking Lunch**		
13:10 – 14:35	① **Usable Security and Privacy**	② **Volunteering and Crowd Information Sourcing**	③ **Situational Awareness**
14:35 – 15:35	**Poster Session**		
15:35 – 17:00	④ **Security and Privacy for Practical Applications**	⑤ **Sensors and Sensor Data Exploitation 1: Laser and Optical Image Analysis**	⑥ **Crisis Management**
17:00 – 20:00	**Welcome Reception**		

WEDNESDAY, SEPTEMBER 16, 2015

Time \ Room	Europasaal	Saal Westfalen	Saal Rheinland
09:00 – 10:25	⑦ Privacy Concerns and Legal Aspects	⑧ Sensors and Sensor Data Exploitation 2: Smart Video Surveillance	⑨ Rail Transportation: Risk and Control of Complex Network Threats
10:25 – 10:55	Coffee Break		
10:55 – 12:20	⑩ Cyber Security	⑪ Sensors and Sensor Data Exploitation 3: Detecting Explosives	⑫ System Engineering, Assessment and Modeling
12:20 – 13:30	Networking Lunch		
13:30 – 14:00	**Keynote** **Technology Strategy and Existential Risk** Nick Bostrom (University of Oxford)		
14:00 – 15:30	**Panel** **Future Disruptions - Implications for societal security from emerging technologies** Moderator: Michael Lauster (Fraunhofer INT) Nick Bostrom (University of Oxford) Walter Biederbick (Robert-Koch-Institut) Patricia Flor (German Federal Government Commissioner for Disarmament and Arms Control) Olaf Theiler (Bundeswehr Planning Office)		
15:30 – 16:00	Coffee Break		
16:00 – 17:05	⑬ Critical Infrastructure Protection 1	⑭ Sensors and Sensor Data Exploitation 4: Screening People	⑮ Resilience 1
18:30 – 23:00	Conference Dinner		

TIMETABLE

THURSDAY, SEPTEMBER 17, 2015

Time \ Room	Europasaal	Saal Westfalen	Saal Rheinland
09:00 – 9:30	**Keynote** **Video Surveillance in France: Recent Developments and Challenges** Thierry Hartmann (French Ministry of the Interior)		
9:30 – 11:00	**Panel Free but Secure: The Power of Big Data** Moderator: Indra Spiecker (University of Frankfurt) Frederick Richter (Federal Foundation for Data Security) Markus Röhrl (State Crime Authority North Rhine-Westphalia) Russel L. Weaver (University of Louisville) Heinrich Amadeus Wolff (University of Bayreuth) Stefan Wrobel (Fraunhofer Big Data Alliance)		
11:00 - 11:30	Coffee Break		
11:30 – 12:35	⑯ **Critical Infrastructure Protection 2**	⑰ **CAPITAL Research and Innovation Agenda for Privacy and Technology Challenges**	⑱ **Resilience 2**
12:35 – 13:40	Networking Lunch		
13:40 – 14:40	**Panel** **Bridging The Gap between Science and Practitioners** Moderator: Ortwin Neuschwander (Fraunhofer FOKUS) Jürgen Beyerer (Fraunhofer IOSB / VVS) Frank Hachemer (Fire Service Association Rheinland-Pfalz) Thierry Hartmann (French Ministry of the Interior) Wolf Junker (German Federal Ministry of Education and Research BMBF) Gregor Lehnert (Association of German Private Security Industry BDSW) Matthias Max (German Red Cross)		
14:40 – 15:00	**Closing Remarks** Jürgen Beyerer (Fraunhofer IOSB / VVS)		

10TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
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TUESDAY, SEPTEMBER 15, 2015

09:00 – 09:45 EUROPASAAL
WELCOME AND OPENING

Prof. Dr.-Ing. habil. Jürgen Beyerer
Conference Chair
Chairman Fraunhofer Group for Defense and Security VVS
Director Fraunhofer IOSB
Professor Karlsruhe Institute of Technology KIT

Dr. Katrin Suder
State Secretary German Federal Ministry of Defence BMVg

Prof. Dr. Wolf-Dieter Lukas
Director Key Technologies - Research for Innovation,
German Federal Ministry of Education and Research BMBF

Volker Meier
Director Permanent Representation of North Rhine-Westphalia
to the Federal Republic of Germany

Georg Wilhelm Adamowitsch
Director Federation of German Security & Defence Industries BDSV

09:45 – 10:15 EUROPASAAL

KEYNOTE

PRIVACY AND DATA PROTECTION - AN EU PERSPECTIVE

Udo Helmbrecht
European Union Agency for Network and Information Security ENISA

Prof. Dr. Udo Helmbrecht has more than 35 years of professional management experience in the IT sector.

Udo Helmbrecht was born in 1955, in Castrop-Rauxel, North Rhine-Westphalia, Germany. He studied Physics, Mathematics and Computer Science at Ruhr-University, Bochum, and in 1984 he was awarded a PhD in Theoretical Physics. In 2010 Udo Helmbrecht was appointed honorary professor at the Universität der Bundeswehr Munich, Germany.

His experience in the field of security has been acquired through work in a variety of areas, including the energy industry, insurance, engineering, aviation, defence, and the space industry. He became the president of the German Federal Office for Information Security (BSI) in 2003.

Udo Helmbrecht took office as Executive Director of the European Union Agency for Network and Information Security (ENISA) in October 2009.

10:15 – 11:45 EUROPASAAL

PANEL
DO LAW, HUMANITIES AND SOCIAL SCIENCES NEED MORE PRAGMATISM TO KEEP UP WITH THE HIGH SPEED OF TECHNOLOGICAL DEVELOPMENTS?

Moderator: **Klaus Vieweg**, University of Erlangen-Nürnberg

Sabine Leutheusser-Schnarrenberger
Former German Federal Minister of Justice

Marina Martínez-García
Spanish Office of Science and Technology

Stefan Weisgerber
German Institute for Standardization DIN

Martina Link
German Federal Criminal Police Office - Bundeskriminalamt BKA

Heinz Gerhäuser
Fraunhofer IIS

13:10 – 14:35 EUROPASAAL

① USABLE SECURITY AND PRIVACY

INVITED SESSION

Chairs:
Matthew Smith (University of Bonn),
Peter Martini (Fraunhofer FKIE)

Rule breakers, excuse makers, and security champions: profiling staff to target security communications
Angela Sasse (UCL)

User factors in mobile security and privacy perception and behavior
Sebastian Möller (Telekom Labs)

Trust Agility for User-Selectable Trust Roots in a Future Internet
Adrian Perrig (ETH Zürich)

Frontiers of Usable Security: Libraries, APIs and Developers
Matthew Smith (Fraunhofer FKIE and Univ. of Bonn)

13:10 – 14:35

SAAL WESTFALEN

② VOLUNTEERING AND CROWD INFORMATION SOURCING

Chairs:
Heiko Werner (German Workers' Samaritan Federation ASB),
Caroline Schweitzer (Fraunhofer IOSB)

Inter-organisational Cooperation for the Professional Integration of Volunteers in Crisis Management
Wolf Engelbach (Fraunhofer IAO) et al.

Crowd Tasking - Realising the Unexploited Potential of Spontaneous Volunteers
Christian Flachberger (Frequentis AG) et al.

Experimenting towards Civil Society Resilience
Wolf Engelbach (Fraunhofer IAO) et al.

Communication Technologies in Disaster Situations: Heaven or Hell?
Daniel Auferbauer (AIT Austrian Institute of Technology GmbH) et al.

13:10 – 14:35

SAAL RHEINLAND

③ SITUATIONAL AWARENESS

Chairs:
Peter Loeffler (Siemens),
Elisabeth Peinsipp-Byma (Fraunhofer IOSB)

German efforts on establishing a Space Situational Awareness capability
Kay Pixius (BAAINBw) et al.

Synthetic Biology - the next „DUAL USE“ RISK !/?
Annika Vergin (Planungsamt der Bundeswehr) et al.

Enhanced Maritime Traffic Picture for the Canadian Arctic
Giulia Battistello (Fraunhofer FKIE) et al.

NEST-CrowdControl - Advanced Video-based Crowd Monitoring for Large Public Events
Eduardo Monari (Fraunhofer IOSB) et al.

14:35 – 15:35 ATRIUM

POSTER SESSION

15:35 – 17:00 EUROPASAAL

④ SECURITY AND PRIVACY FOR PRACTICAL APPLICATIONS

Chairs:
Mario Strefler (Karlsruhe Institute of Technology KIT),
Erik Krempel (Fraunhofer IOSB)

SECURUS - A Provable Secure Database Outsourcing Scheme
Tobias Nilges (Karlsruhe Institute of Technology KIT) et al.

Privacy Score: Making privacy aspects of surveillance systems comparable
Erik Krempel (Fraunhofer IOSB) et al.

On the Security of Public Cloud Storage
Steffen Müller (Karlsruhe Institute of Technology KIT) et al.

Graphical Model-based Privacy Policy Editing for Smart Video Surveillance
Pascall Birnstill (Fraunhofer IOSB) et al.

15:35 – 17:00

SAAL WESTFALEN

⑤ SENSORS AND SENSOR DATA EXPLOITATION 1: LASER AND OPTICAL IMAGE ANALYSIS

Chairs:
Reinhard Ebert (Fraunhofer IOSB),
Frank Fuchs (Fraunhofer IAF)

Advanced laser-based imaging technologies for situational awareness in unmanned vehicles
Bernd Michael Fischer (French-German Research Institute of Saint-Louis ISL) et al.

A fast Hyperspectral Laser Induced Fluorescence application for standoff detection and online classification of biological hazardous materials
Frank Duschek (German Aerospace Center) et al.

Wake-up mode camera system to detect unauthorized persons and vehicles
Pasi Pyykönen (VTT Technical Research Centre of Finland) et al.

Results from 3D-Forensics - Mobile high-resolution 3D-Scanner and 3D data analysis for forensic evidence
Stephen Crabbe (Crabbe Consulting Ltd.) et al.

15:35 – 17:00 SAAL RHEINLAND

⑥ CRISIS MANAGEMENT

Chairs:
Leonard Reindl (IMTEK),
Merle Missoweit (Fraunhofer INT)

Technical-socio-economic model of the Urban Crises Management System for grid-bound Infrastructures (UCMS) to increase the urban resilience, and to minimize consequential damages
Christoph Stroschein (GESI Deutsche Gesellschaft für Systeminnovation mbH) et al.

Challenges for the Use of Information technology and Standards in International Disaster Management
Lina Jasmontaite (KU Leuven) et al.

Collaboration in Crisis Management - Learning from the Transportation Domain
Christian Flachberger, Thomas Obritzhauser (Frequentis AG) et al.

Analysing organisational, legal, and political framework conditions to support the implementation of new crisis management solutions
Maike Vollmer (Fraunhofer INT) et al.

17:00 – 20:00 ATRIUM

WELCOME RECEPTION

WEDNESDAY, SEPTEMBER 16, 2015

09:00 – 10:25 EUROPASAAL

⑦ PRIVACY CONCERNS AND LEGAL ASPECTS

Chairs:
Viola Schmid (TU Darmstadt),
Andreas Meissner (Fraunhofer IOSB)

Resolving the privacy and security trade-off - Contributions from participatory involvement of citizens
Jaro Krieger-Lamina (Austrian Academy of Sciences) et al.

European attitudes towards Internet security and privacy
Sunil Patil (RAND Europe) et al.

The Complexity of Security Dimensions: A Comparison of the North-West and South-East European Regions
Ksenia Chmutina (Loughborough University),
Andrew Dainty (Loughborough University) et al.

Legal challenges of fighting botnets: a law enforcement perspective
Karine e Silva (Tilburg University)

09:00 – 10:25

SAAL WESTFALEN

⑧ SENSORS AND SENSOR DATA EXPLOITATION 2: SMART VIDEO SURVEILLANCE

Chairs:
Berthold Stoppelkamp (Assoc. of German Private Security Industry BDSW),
Markus Müller (Fraunhofer IOSB)

A Multi-Sensor Technology for improving Security at Complex Scenarios with increased Risk of Violence
Frank Pagel (Fraunhofer IOSB) et al.

Camera technology for behavioural profiling at Amsterdam Airport Schiphol
Eddy Zwier (TNO) et al.

Knowledge-based situational analysis of unusual events in public places
David Münch (Fraunhofer IOSB) et al.

Acoustic Event Source Localization Supporting a Video Surveillance System
Peter Transfeld (Technical University of Braunschweig) et al.

09:00 – 10:25

SAAL RHEINLAND

⑨ RAIL TRANSPORTATION: RISK AND CONTROL OF COMPLEX NETWORK THREATS

Chairs:
Silja Meyer-Nieberg (Bundeswehr University Munich),
Stefan Pickl (Bundeswehr University Munich)

A Transparent Approach for Prioritising Security Measures
Tim Müller (Karlsruhe Institute of Technology KIT) et al.

Conceptual Framework for Evaluation of the Effectiveness of Intelligent Security Measures in Public Transportation through a Multi-Agent-Simulation Data Farming Experiment to prevent Terrorist Attacks
Holger Bracker (Airbus Defence and Space GmbH) et al.

Exploring Data Analysis Techniques for Threat Estimation
Matthias Dehmer (Bundeswehr University Munich) et al.

Aspects of Quantitative Analysis of Transportation Networks
Matthias Dehmer (Bundeswehr University Munich) et al.

10:55 – 12:20 EUROPASAAL

⑩ CYBER SECURITY

Chairs:
Andreas Könen (BSI),
Peter Martini (Fraunhofer FKIE)

Cyber Threats: Introducing a Risk Management Framework for Cyber Security in Critical Infrastructure Protection
Silja Meyer-Nieberg (Bundeswehr University Munich) et al.

Decision-making criteria for cyber security adoption: Internet of things cyber security issues
Alexander Wiesmaier (AGT International) et al.

ParasiteEx: Disinfecting Parasitic Malware Platform-Independently
Thomas Barabosch (Fraunhofer FKIE) et al.

10:55 – 12:20

SAAL WESTFALEN

⑪ SENSORS AND SENSOR DATA EXPLOITATION 3: DETECTING EXPLOSIVES

Chairs:
Hermann Ries (Smiths Heimann),
Horst Krause (Fraunhofer ICT)

Explosive material detection through analysis of Infrared and RAMAN Spectrums captured by a portable sensor
Hichem El Mokni (Fraunhofer FKIE) et al.

Synthesis and test of suitable adsorbers for selectively trapping and detecting explosives and improvised explosives precursors from gasphase
Gudrun Bunte (Fraunhofer ICT)

Localisation of IED Manufacturing Facilities by Detection of Explosives in Sewage Water
Frank Schnürer (Fraunhofer ICT) et al.

Standoff trace detection of explosives with active Infrared Hyperspectral Imagery
Frank Fuchs (Fraunhofer IAF) et al.

10:55 – 12:20

SAAL RHEINLAND

⑫ SYSTEM ENGINEERING, ASSESSMENT AND MODELING

Chairs:
Dietmar Hilke (Thales),
Birger Krägelin (Fraunhofer IOSB)

Ubicity - Conquering Crisis and Disaster Management Challenges with Big Data Analytics
Jasmin Pielorz (AIT Austrian Institute of Technology GmbH) et al.

Experimentation campaigns for assessing security solutions: Case Studies from FP7
Christian Carling (Swedish Defence Research Agency) et al.

A quantitative risk model for a uniform description of safety and security
Jürgen Beyerer (Fraunhofer IOSB) et al.

Improving the Border Control Process by Queue Length Optimization
Gunther Grasemann (Fraunhofer IOSB) et al.

13:30 – 14:00 EUROPASAAL

KEYNOTE
TECHNOLOGY STRATEGY AND EXISTENTIAL RISK

Nick Bostrom
University of Oxford

Nick Bostrom is Professor in the Faculty of Philosophy at Oxford University. He is the founding Director of the Future of Humanity Institute, a multidisciplinary research center which enables a few exceptional mathematicians, philosophers, and scientists to think carefully about global priorities and big questions for humanity.

Bostrom has a background in physics, computational neuroscience, and mathematical logic as well as philosophy. He is the author of some 200 publications, including Anthropic Bias (Routledge, 2002), Global Catastrophic Risks (ed., OUP, 2008), Human Enhancement (ed., OUP, 2009), and the academic book Superintelligence: Paths, Dangers, Strategies (OUP, 2014), which became a New York Times bestseller. He is best known for his work in five areas: (i) existential risk; (ii) the simulation argument; (iii) anthropics (developing the first mathematically explicit theory of observation selection effects); (iv) impacts of future technology; and (v) implications of consequentialism for global strategy.

He is recipient of a Eugene R. Gannon Award (one person selected annually worldwide from the fields of philosophy, mathematics, the arts and other humanities, and the natural sciences). He has been listed on Foreign Policy's Top 100 Global Thinkers list; and he was included on Prospect magazine's World Thinkers list, the youngest person in the top 15 from all fields and the highest-ranked analytic philosopher. His writings have been translated into 24 languages. There have been more than 100 translations and reprints of his works.

14:00 – 15:30 EUROPASAAL

PANEL
FUTURE DISRUPTIONS - IMPLICATIONS FOR SOCIETAL SECURITY FROM EMERGING TECHNOLOGIES

Moderator: **Michael Lauster**, Fraunhofer INT

Nick Bostrom
University of Oxford

Walter Biederbick
Robert-Koch-Institut

Patricia Flor
German Federal Government Commissioner for Disarmament and Arms Control

Olaf Theiler
Bundeswehr Planning Office

16:00 – 17:05

EUROPASAAL

⑬ CRITICAL INFRASTRUCTURE PROTECTION 1

Chairs:
Gerhard Coors (German Federal Ministry of Defence),
Michael Lauster (Fraunhofer INT)

Detection, recognition and counter measures against unwanted UAVs
Matthias Kollmann (Fraunhofer IOSB) et al.

CARONTE - Creating an Agenda for Research on Transportation Security
Joachim Kochsiek (Fraunhofer IML) et al.

Generation dependence of communication device vulnerability to intentional electromagnetic interference (IEMI)
Michael Suhrke (Fraunhofer INT) et al.

16:00 – 17:05

SAAL WESTFALEN

⑭ SENSORS AND SENSOR DATA EXPLOITATION 4: SCREENING PEOPLE

Chairs:
Achim Friedl (German Federal Ministry of the Interior),
Joachim Ender (Fraunhofer FHR)

Robust detection of threats hidden underneath human clothing in a given passive millimeter-wave screening scenario
Satish Madhogaria (Fraunhofer FKIE) et al.

3D MIMO Imaging at 360 GHz for Security Screening
Stefan Lang (Fraunhofer FHR) et al.

Extending security perimeter and protecting crowded places with Human Security Radar
Dimitrii Vakhtin (Apstec Systems) et al.

16:00 – 17:05

SAAL RHEINLAND

⑮ RESILIENCE 1

Chairs:
Tobias Leismann (Fraunhofer EMI),
Antje Bierwisch (Fraunhofer ISI)

Measuring Resilience - The Benefits Of An Empirical Study Of Power Outages By Media Data
Thomas Münzberg (Karlsruhe Institute of Technology KIT) et al.

Towards a Better Understanding of Cyber Civic Resilience (CCR)
Beatrix Wepner (AIT Austrian Institute of Technology GmbH) et al.

10TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 15–17, 2015

CONFERENCE DINNER

WEDNESDAY, SEPTEMBER 16, 2015

18:30 – 23:00

CONFERENCE DINNER
SCENIC BOAT TRIP

Come on board and discover Berlin in a completely different way. Experience a great sightseeing tour on the river Spree through the historic center:

- Eastside Gallery
- Bellevue Castle
- Reichstag
- Museum Island
- Nikolaiviertel
- City Palace and a lot more!

A special highlight will be the conference dinner, with fine dining and an entertaining evening program - all included in your registration fee. Transportation to the boat and back is arranged.

DINNER LOCATION

Stern und Kreisschiffahrt GmbH
Märkisches Ufer
10179 Berlin, Germany

A detailed location plan can be found in your conference folder.

10TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 15–17, 2015

THURSDAY, SEPTEMBER 17, 2015

09:00 – 09:30 EUROPASAAL

KEYNOTE

VIDEO SURVEILLANCE IN FRANCE: RECENT DEVELOPMENTS AND CHALLENGES

Thierry Hartmann
French Ministry of the Interior

Professional Experience

September 2011 – September 2015
Police Attaché at French Embassy in Berlin
October 2007
Assistant Director of public security : Bas-Rhin Department – Strasbourg
2003 – 2007
Technical advisor, Office of General Director of National Police : Paris
February 2003 – June 2003
Police Attaché in Geneva : G8 Evian summit framework
1996 – 2003
Head of operational management department /public security direction for Bas-Rhin Department
1994 – 1996
Assistant Director of public security for Territoire de Belfort Department
1989 – 1994
Head of criminal police department in Mulhouse
1988 – 1989
Head of crime repression brigade : criminal investigation dep. in Strasbourg
1981 – 1984
Institute for political studies in Strasbourg

09:30 – 11:00

EUROPASAAL

PANEL
FREE BUT SECURE: THE POWER OF BIG DATA

Moderator: **Indra Spiecker**, University of Frankfurt

Frederick Richter
Federal Foundation for Data Security

Markus Röhrl
State Crime Authority North Rhine-Westphalia

Russel L. Weaver
University of Louisville

Heinrich Amadeus Wolff
University of Bayreuth

Stefan Wrobel
Fraunhofer Big Data Alliance

11:30 – 12:35

EUROPASAAL

⑯ CRITICAL INFRASTRUCTURE PROTECTION 2

Chairs:
Dietrich Läpke (German Federal Criminal Police Office BKA),
Oliver Ambacher (Fraunhofer IAF)

Wake-Up Transceivers for Monitoring Critical Infrastructure - a Prototype overcoming Duty Cycling in Wireless Sensor Networks
Timo Kumberg (University of Freiburg) et al.

Realtime Detection and Mitigation of CBRN related Contamination Events of Drinking Water
Jürgen Moßgraber (Fraunhofer IOSB) et al.

SAWSOC: Situation Aware Security Operations Center
Claudio Porretti (SELEX ES) et al.

11:30 – 12:35

SAAL WESTFALEN

⑰ CAPITAL RESEARCH AND INNOVATION AGENDA FOR PRIVACY AND TECHNOLOGY CHALLENGES

Chairs:
Mari Kert (European Organisation for Security EOS),
Christoph Bier (Fraunhofer IOSB)

SPECIAL SESSION

With modern technologies evolving, threats follow and cyber-attacks become more and more sophisticated. CAPITAL is a two year project that aims to deliver a pan-European Research and Innovation Cyber-Security Agenda, which will tackle these growing issues. The project promotes a common approach, including existing initiatives and taking under consideration agendas that already exist in cyber topics.

Strongly recommending a citizen centric approach, CAPITAL not only looks into topics currently in need for solutions, but envisages a strategy that will include likely topics of the future. Socio-economic issues, which derive from cyber-attacks, are a focus area, as they affect citizens the most. The CAPITAL session is an opportunity for conference participants to liaise with the CAPITAL project team.

11:30 – 12:35

SAAL RHEINLAND

⑱ RESILIENCE 2

Chairs:
Antje Bierwisch (Fraunhofer ISI),
Jörg Feldmann (Fraunhofer FOKUS)

Risk-based resilience quantification and improvement for urban areas
Kai Fischer (Fraunhofer EMI) et al.

Assessing Passenger Flows and Security Measure Implementations in Public Transportation Systems
Martin Zsifkovits (Bundeswehr University Munich) et al.

13:40 – 14:40 EUROPASAAL

PANEL
BRIDGING THE GAP BETWEEN SCIENCE AND PRACTITIONERS

Moderator: **Ortwin Neuschwander**, Fraunhofer FOKUS

Jürgen Beyerer
Fraunhofer IOSB / VVS

Frank Hachemer
Fire Service Association Rheinland-Pfalz

Thierry Hartmann
French Ministry of the Interior

Wolf Junker
German Federal Ministry of Education and Research BMBF

Gregor Lehnert
Association of German Private Security Industry BDSW

Matthias Max
German Red Cross

14:40 – 15:00 EUROPASAAL

CLOSING REMARKS

Jürgen Beyerer (Fraunhofer IOSB / VVS)

POSTERS

P 1 **EXPEDIA - A new EU project aiming to reduce threats from homemade explosives**
Thomas Keicher (Fraunhofer ICT); Sven Hafner (Fraunhofer ICT); Horst Krause (Fraunhofer ICT); Henric Östmark (Swedish Defence Research Agency); Malin Kölhed (Swedish Defence Research Agency); Patrik Krumlinde (Swedish Defence Research Agency)

P 2 **Metal Organic Frameworks as selective preconcentrator material for gas-phase sensing**
Max Rieger (Fraunhofer ICT); Moritz Heil (Fraunhofer ICT); Jürgen Hürttlen (Fraunhofer ICT); Frank Schnürer (Fraunhofer ICT); Gudrun Bunte (Fraunhofer ICT); Horst Krause (Fraunhofer ICT)

P 3 **Face- and appearance-based person identification for forensic analysis of surveillance videos**
Christian Herrmann (Fraunhofer IOSB); Jürgen Metzler (Fraunhofer IOSB); Dieter Willersinn (Fraunhofer IOSB); Jürgen Beyerer (Fraunhofer IOSB)

P 4 **CairGoLution - Real time transparency of the air freight supply chain**
Tobias Seidler (Fraunhofer SCS); Konstantin Tigkos (Fraunhofer IIS)

P 5 **Towards A Mobile Context-sensitive Framework For Interoperability And Improved Situational Awareness In Crisis And Emergency Management**
Ravi Coote (Fraunhofer FKIE); Kellyn Rein (Fraunhofer FKIE); Markus Esch (Fraunhofer FKIE); Ulrich Schade (Fraunhofer FHG)

P 6 **An Adaptive Data-Centric Infrastructure For Big Data Type Collection Applications In Restricted Environments**
Sandro Leuchter (Rhine-Waal University of Applied Sciences)

P 7 **Development of X-ray signature comparison to increase air freight security**
Konstantin Tigkos (Fraunhofer IIS); Ulf Haßler (Fraunhofer IIS); Frank Sukowski (Fraunhofer IIS, Germany); Tobias Seidler (Fraunhofer SCS); Theobald Fuchs (Fraunhofer IIS)

P 8 **Privacy Aware Modular Video Analytics**
Martin Boyer (AIT Austrian Institute of Technology); Stephan Veigl (AIT Austrian Institute of Technology

P 9 **Characteristics and survival of Bacillus cereus in spices**
Hendrik Frentzel (Federal Institute for Risk Assessment); Mai Dinh Thanh (Federal Institute for Risk Assessment); Gladys Krause (Federal Institute for Risk Assessment); Juliane Bräunig (Federal Institute for Risk Assessment); Bernd Appel (Federal Institute for Risk Assessment); Anneluise Mader (Federal Institute for Risk Assessment)

P 10 **Towards Privacy in Monitored Shared Environments**
Kaibin Bao (Karlsruhe Institute of Technology KIT); Thomas Bräuchle (Karlsruhe Institute of Technology KIT); Hartmut Schmeck ((Karlsruhe Institute of Technology KIT))

P 11 **Analysing Radargrams and Sonargrams by Biological Inspired Signal Processing Methods to Optimize the Detection of Mines and Dumped Ammunition**
Matthias Reuter (CUTEC Institute GmbH); Sabine Bohlmann (CUTEC Institute GmbH)

POSTERS

P 12 **Safety & Security Management System in Public Transport**
Slavomira Vargova (Technical University of Kosice);
Juraj Sinay (Technical University of Kosice)

P 13 **SCINTILLA - a European Project for Nuclear Security**
Sebastian Chmel, Wolfram Berky, Thomas Brall, Hermann Friedrich, Jeannette Glabian, Theo Köble, Monika Risse, Wolfgang Rosenstock, Olaf Schumann (Fraunhofer INT); Guillaume Sannie, Stéphane Normand, Guillaume Montemont, Olivier Monnet, Sylvain Stanchina (Commissariat à l'énergie atomique et aux énergies alternatives); Paolo Peerani, Hamid Tagziria (European Commision, Joint Research Centre); Raffaella De Vita, Erica Fanchini (Istituto Nazionale di Fisica Nucleare); Gabriele Firpo, Enrico Botta (Ansaldo Nucleare S.P.A); András Kovács, László Lakosi (Hungarian Academy of Sciences, Centre for Energy Research); Christian Baumhauer, Tiphaine Deheunynck, Elizabeth Haddad (ARTTIC); Grégoire Petrossian, Romain Fossé (SAPHYMO); Grant Crossingham, Geraint Dermody, Andrew Price (Symetrica Security Ltd)

P 14 **Protection of Smart Grids and IoT in the Wake of the 4th Industrial Revolution (Industry 4.0)**
Feliks Vainik (e*Message W.I.S. GmbH)

P 15 **Generic Integrated Forensic Toolbox for CBRN incident - GIFT**
Andrew Johnston (Falcon Communications)

P 16 **Automatic detection of objects with multistatic millimeter wave imaging technology**
Athanasios Karamalis (Rohde & Schwarz GmbH & Co. KG)

P 17 **Improvement of optical and acoustical technologies for the protection of camps or mobile troops: Project IMOTEP**
Sébastien Hengy (French-German Research Institute of Saint-Louis); Martin Laurenzis (French-German Research Institute of Saint-Louis); Bernd Michael Fischer (French-German Research Institute of Saint-Louis); Pierre Naz (French-German Research Institute of Saint-Louis); Véronique Zimpfer (French-German Research Institute of Saint-Louis)

P 18 **SECTOR: Secure Common Information Space for the Interoperability of First Responders**
Jana Mauthner (University of Stuttgart / Fraunhofer IAO); Sandra Frings (Fraunhofer IAO); Wolf Engelbach (Fraunhofer IAO); Łukasz Szklarski (ITTI Sp. z o.o.); Piotr Gmitrowicz (ITTI Sp. z o.o.); Yann Semet (Thales Research & Technology); Frank Wilson (Stichting Studio Veiligheid SSV); Jean-Paul Pignon (Thales Communications & Security SAS)

P 19 **Networked IT-Security for Critical Infrastructures - The Research Agenda of VeSiKi**
Sandra Bergner (Bundeswehr University Munich); Benedikt Buchner (Universität Bremen); Sebastian Dännart (Bundeswehr University Munich); Albrecht Fritzsche (FAU Erlangen-Nürnberg); Andreas Harner (VDE|DKE); Sophia Harth (VDE|DKE); Max Jalowski (FAU Erlangen-Nürnberg); Dennis-Kenji Kipker (Universität Bremen); Ulrike Lechner (Bundeswehr University Munich); Kathrin Möslein (FAU Erlangen-Nürnberg); Andreas Rieb (Bundeswehr University Munich); Martin Riedl (Bundeswehr University Munich)

P 20 **Mobile Units for Characterization of Sites contaminated by Accidents**
Thomas Streil (SARAD GmbH); Veikko Oeser (SARAD GmbH)

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- Technological Trend Analysis INT
- Optronics, System Technologies and Image Exploitation IOSB

- Integrated Circuits IIS (Guest member)
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VENUE

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beim Bund

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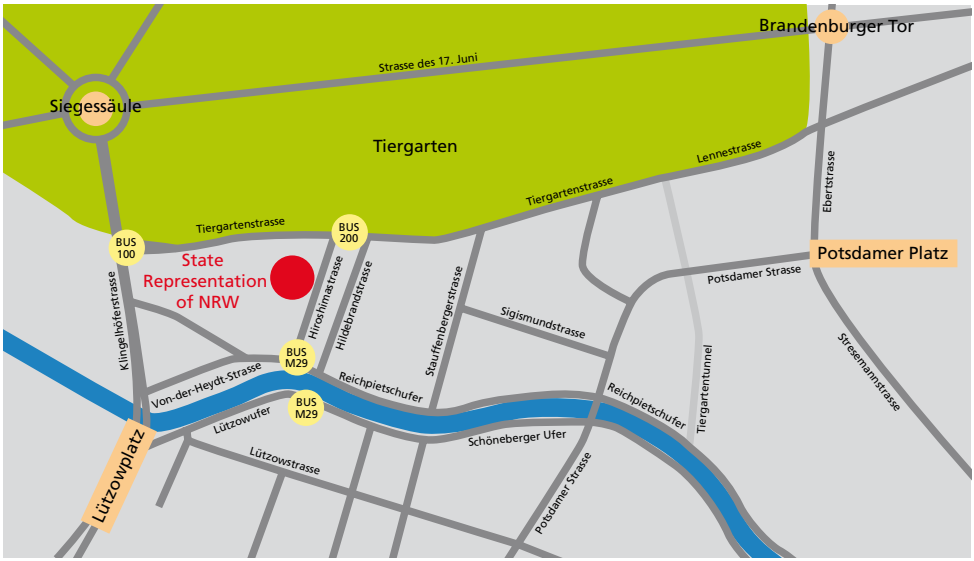

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  Bus M29, N29
- Bus stop “Nordische Botschaften/Adenauer-Stiftung”:
  Bus 100, 187, 106, N26

10TH FUTURE SECURITY
SECURITY RESEARCH CONFERENCE
BERLIN, SEPTEMBER 15–17, 2015

GENERAL INFORMATION

REGISTRATION AND OPENING HOURS

The registration desk is open and entry to the conference venue is possible during the following times:

Tuesday, September 15, 2015:	8:00 – 20:00
Wednesday, September 16, 2015:	8:30 – 17:00
Thursday, September 17, 2015:	8:30 – 15:00

CONFERENCE FEES

Regular	700,00 €
Speaker	550,00 €
Students (Copy of Student ID required)	200,00 €
Ministries	200,00 €

These fees include coffee breaks and lunch buffets, the welcome reception on September 15, 2015, and the conference dinner on September 16, 2015.

CONFERENCE PROCEEDINGS

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NOTES

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