WCC 2018

Congress Program

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Keynote talks

Talk open to the public, supported by the City of Poznań **Responsible Data Science in a Dynamic World**

Prof. Wil van der Aalst, Technische Universiteit Eindhoven

Abstract: Big data are changing the way we do business, socialize, conduct research, and govern society. Data are collected on anything, at any time, and in any place. Large datasets are often considered as the "new oil" and data science aims to transform this into new forms of "energy": insights, diagnostics, predictions, and automated decisions. Yet, the process of transforming "new oil" (data) into "new energy" (analytics) may negatively impact citizens, patients, customers, and employees. Systematic discrimination based on data, invasions of privacy, non-transparent life-changing decisions, and inaccurate conclusions occur everywhere. Responsible Data Science (RDS), also referred to as Green Data Science (GDS), aims to address challenges related to Fairness (Data science without prejudice: How to avoid unfair conclusions even if they are true?), Accuracy (Data science without guesswork: How to answer questions with a guaranteed level of accuracy?), Confidentiality (Data science that ensures confidentiality: How to answer questions without revealing secrets?), and Transparency (Data science that provides transparency: How to clarify answers such that they become indisputable?). These FACT challenges will be illustrated using powerful process mining techniques that are able to discover the real processes, detect deviations from normative process models, and uncover bottlenecks and waste. Process mining can be used to reveal the dynamic behaviors of workers, customers, and other people. In our dynamic world event data is extremely valuable, but can also be used in an irresponsible way. Therefore, concerns related to fairness, accuracy, confidentiality, and transparency generate new and interesting challenges that require technological breakthroughs (and not just stricter laws).

Prof.dr.ir. Wil van der Aalst is a distinguished university professor at the Technische Universiteit Eindhoven (TU/e) where he is also the scientific director of the Data Science Center Eindhoven (DSC/e). Since 2003 he holds a part-time position at Queensland University of Technology (QUT). Currently, he is also a visiting researcher at Fondazione Bruno Kessler (FBK) in Trento and a member of the Board of Governors of Tilburg University. His personal research interests include process mining, Petri nets, business process management, workflow management, process modeling, and process analysis. Wil van der Aalst has published over 200 journal papers, 20 books (as author or editor), 450 refereed conference/workshop publications, and 65 book chapters. Many of his papers are highly cited (he one of the most cited computer scientists in the world; according to Google Scholar, he has an H-index of 135 and has been cited 80,000 times) and his ideas have influenced researchers, software developers, and standardization committees working on process support. Next to serving on the editorial boards of over 10 scientific journals he is also playing an advisory role for several companies, including Fluxicon, Celonis, and ProcessGold. Van der Aalst received honorary degrees from the Moscow Higher School of Economics (Prof. h.c.), Tsinghua University, and Hasselt University (Dr. h.c.). He is also an elected member of the Royal Netherlands Academy of Arts and Sciences, the Royal Holland Society of Sciences and Humanities, and the Academy of Europe. Recently, he was awarded with a Humboldt Professorship, Germany's most valuable research award (five million euros), and will move to RWTH Aachen University at the beginning of 2018.

Talk open to the public, supported by the City of Poznań

The Pros and Cons of Blockchain for Privacy

Dr. Jan Camenisch

Dr. Jan Camenisch is a Principal Research Staff Member at IBM Research - Zurich and leads the Privacy & Cryptography research team. He's a member of the IBM Academy of Technology, an IEEE Fellow, and an IACR Fellow.

He is a leading scientist in the area of privacy and cryptography, has published over 100 widely cited papers, and has received a number of awards for his work, including the 2010 ACM SIGSAC outstanding innovation award and the 2013 IEEE computer society technical achievement award.

Jan is also a co-inventor of Identity Mixer, a unique cryptographic protocol suite for privacy-preserving authentication and transfer of certified attributes.

Jan previously led the FP7 European research consortia PRIME and PrimeLife, and he and his team continue to participate in many other projects including ABC4Trust, AU2EU, and Witdom. Jan currently holds an Advanced ERC grant for "Personal Cryptography" (PERCY).

Talk open to the public, supported by the City of Poznań

What Needs to be Added to Machine Learning?

Prof. Leslie Valiant, Harvard University

Abstract: Supervised learning is a cognitive phenomenon which has proved amenable both to theoretical analysis as well as exploitation as a technology. However, not all of cognition can be accounted for by supervised learning. The question we ask here is whether one can build on the success of machine learning to address the broader goals of artificial intelligence. We regard reasoning as the major component of cognition that needs to be added. We suggest that the central challenge therefore is to unify the formulation of these two phenomena, learning and reasoning, into a single framework with a common semantics . We propose Robust Logic for this role, as a framework

with a satisfactory theoretical basis. Testing it experimentally on a significant scale remains a major challenge for the future.

Leslie Valiant was educated at King's College, Cambridge; Imperial College, London; and at Warwick University where he received his Ph.D. in computer science in 1974. He is currently T. Jefferson Coolidge Professor of Computer Science and Applied Mathematics in the School of Engineering and Applied Sciences at Harvard University, where he has taught since 1982. Before coming to Harvard he had taught at Carnegie Mellon University, Leeds University, and the University of Edinburgh.

His work has ranged over several areas of theoretical computer science, particularly complexity theory, learning, and parallel computation. He also has interests in computational neuroscience, evolution and artificial intelligence and is the author of two books, *Circuits of the Mind*, and *Probably Approximately Correct*.

He received the Nevanlinna Prize at the International Congress of Mathematicians in 1986, the Knuth Award in 1997, the European Association for Theoretical Computer Science EATCS Award in 2008, and the 2010 A. M. Turing Award. He is a Fellow of the Royal Society (London) and a member of the National Academy of Sciences (USA).

WCC 2018 keynote talk: Friday, 21 September, 2018

Technologies for Sustainable Development
Shamika N. Sirimanne, Harnessing Frontier

Abstract: The talk will be based on the Technology and Innovation Report 2018 of UNCTAD. Ms Sirimanne will present the special features and potential of frontier technologies, examine economic and societal challenges these technologies bring to developing countries, and present UNCTAD's research findings on how to harness frontier frontier technologies for achieving sustainable development goals. She will also outline how organizations like IFIP can contribute to the development aspirations of developing countries.

Ms. Shamika N. Sirimanne is the Director of the Division on Technology and Logistics (DTL) of UNCTAD. She leads UNCTAD's work in Science, Technology and Innovation (STI), including the work on e-commerce and digital economy. She also serves as the Head of the Secretariat of the UN Commission of Science and Technology for Development which is the focal point of the United Nations on STI policy dialogue. Ms. Sirimanne has extensive experience in development policy, research and technical cooperation gained from international organizations, national governments, think tanks and universities. She served as Director of the ICT and Disaster Risk Reduction Division of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), where she spearheaded major regional cooperation programmes. Among them are the Asia-Pacific Information Superhighway initiative for seamless broadband connectivity, Regional Drought Mechanism for monitoring and early warning of drought through space applications, and the United Nations Network of Experts for Paperless Trade (UNNExT) initiated in collaboration with the United Nations Economic Commission for Europe.

During her tenure with ESCAP, Ms. Sirimanne also headed the trade facilitation programme, and led the macroeconomic policy work and ESCAP's flagship publication, Economic and Social Survey of Asia and the Pacific. Prior to that, Ms. Sirimanne was with the United Nations Economic Commission for Africa (ECA), where she led the economic policy team and the Economic Report on Africa, the flagship publication of ECA. Ms. Sirimanne has also worked for the Canadian Department of Finance and the World Bank. Ms. Sirimanne holds a PhD in Economics.

The Internet of Things is hardly about technology: How it impacts society, business and professions

Kees van der Klauw

Abstract: While the Internet of Things is enabled by technological advancements in computing, communications and data storage, the success of its applications will largely depend on non-technical matters. Acceptance of use-cases by end users, trust in systems and organisations and redistribution of value in changing business models are just a few examples. Increasingly those aspects become important design factors in the architecture of IoT. What does that mean for professionals in information technology in the future?

Kees van der Klauw graduated from the department of Electronics Engineering of the Delft University of Technology in the Netherlands and received a Ph.D. in the area of semiconductor devices (CCD's) in 1987. He joined Philips Research where he worked several years on the design and characterization of CMOS devices and processes. In 1992 he moved to Philips' Flat Panel Displays where he held positions in project management, engineering-, operations- and general management of Philips LCD activities and was involved in the establishment of Philips' LCD joint ventures in Japan and Korea. In 1999, he joined Philips Consumer Electronics and became the development manager for High-End TV in Bruges, Belgium. From 2003 he was in charge of worldwide platform development for Philips Television and in 2005 became CTO of Philips Television, Monitors and Professional Display Business. Kees joined Philips Lighting in 2009, where he was the Chief Architect and the R&D Manager for Professional Lighting Solutions. From October 2013, he has been the Head of the Research for Philips Lighting and he played a key role in the split of corporate Philips Innovation in a Healthcare and Lighting Company.

Starting in 2018, Kees has created the independent Innovation Consultancy and Interim Management Company, InnoAdds.

Since 2015 Kees has been involved in the establishment of the Alliance for Internet of Things Innovation (AIOTI) and he is currently the first elected chairman of this registered Association, driving IoT innovation in Europe.

Why Models (NOT Data) are the 'gold of the information age'!

Dr. Ralf-Detlef Kutsche

Abstract: The running trends in computer science research in "data and information management" are: 'Big data', 'data analysis/analytics/ science' and 'machine learning'.

"Data is the gold of the information age", or "Data scientist is the sexiest job of the 21st century" are well-known statements in politics, business and in science.

However, beside all these generally accepted trends and statements, the basic needs of industrial software development arise from the complex problem of „integration of software ('interoperability') AND data (at the same time)", having a market share of 80% (!) of the total software development in the world. These problems heavily impact the ‚every-day-bread-and-butter' workload in software companies, most of them SMEs in a deeply specialized 'domain specific' market.

This presentation will give an overview, and, additionally, technicals details and many examples on a long personal record of successful experiences in information systems development & integration methodology, based on three essential paradigms:

- Model (and meta-model) based methods for MBSDI: Why is it (...still and more than ever before ...) useful to "waste" a lot of time in the initial phases of software development: software and information modeling?

- Semantic concepts and ontologies: Why mathematics and formal logic (…still and more than ever before …) is an essential skill for each computer scientist and each software developer?
- Patterns: Why we should not re-invent the wheels in each decade from scratch, why not learn from the past?

In the context of BDAS, we will focus on the methodology of MBSDI, and on concrete achievements in information centric solutions for industry.

Short biography:

- Ph.D. at TU Berlin in applications of formal methods to clinical information systems.
- Senior scientist (Academic Director) at TUB chair 'Computation and Information Structures CIS' (Prof. Herbert Weber), focusing on 'Heterogeneous Distributed Information Systems'. At the same time, scientific coordinator, project leader and member of the board of leaders with Fraunhofer ISST (lateron -> Fraunhofer FIRST -> Fraunhofer FOKUS).
- From 2005 provisional head of the CIS group; from 2008 Acad. Director under new professorship and chair: Prof. Dr. Volker Markl (research group now called: DIMA group)
- Science Chair of both BIZYCLE (2007-2010, approx. 6.5 mio €) and BIZWARE (2010-2013, approx. 11 mio €) project consortia, a large-scale initiative by TU Berlin and industry (6 resp. 8 SMEs) establishing "Model Based Software and Data Integration" as a focus area for SMEs in Germany in several business domains, funded by German BMBF (under the frame programme "Regional Growth Cores").
- Coordinator of DIMA's international Master's programmes: ERASMUS MUNDUS "IT4BI" (since 2012), EIT Digital "Data Science track" (since 2015), ERASMUS + (EMMJC) "BDMA" (since 2017).
- Co-Initiator of the international Master's programme IT4Energy with Faculty III/Campus El Gouna.

Invited talk at TC-14 ICEC: Tuesday, 18 September, 2018

From Design Computing to Creating Unique Technologies for Everyone

Prof. Ellen Yi-Luen Do

Abstract: Now is an exciting time to engage in creative design computing, to implement physically and computationally enhanced environment, to explore experience media and interactive computing projects, towards a smart living environment. Advancing technology offers new ways to solve problems, discover opportunities, and create new objects and experience that delight our senses and improve the way we live and work. With a spark of creativity and enthusiasm, followed up with design and computational thinking, we can explore the goal of "creating unique technology for everyone" through the use of connective, ubiquitous technology for embodiments, in three themes: Tangible Interaction, Augmented Learning, and Embodied Experience.

Ellen Yi-Luen Do is Director of Innovation and Partnership at the ATLAS Institute, and Professor in the Department of Computer Science at the University of Colorado Boulder. Before joining CU in 2017, she was a professor of Georgia Tech's School of Industrial Design and the School of Interactive Computing. At Georgia Tech she directs the ACME Creativity Machine Group and the Healthcare Design of the Future interdisciplinary R&D initiative for integrating technology into built environments. She was a member of the GVU Center faculty, an affiliate at the Center for Music Technology, and a core faculty at the Health Systems Institute, which hosts her office and lab. Ellen developed the Industrial Design Track of the MS-HCI degree program jointly with the School of Interactive Computing and served as an Associate Director of the program management team. She received a MDesS degree from Harvard University Graduate School of Design (1991) and a Ph.D. in Design Computing from Georgia Tech (1998). Before returning to Georgia Tech as a professor (in 2006), she taught at the University of Washington in Seattle (1999-2004, Design Machine Group) and Carnegie Mellon University (2004–2005, CoDe Lab). Ellen was on leave from Georgia Tech (2013–2016) to serve as the co-director of the Keio-NUS CUTE Center at the National University of Singapore.

Cryptographic failures: how and why they happen

Krystian Matusiewicz, INTEL Technology Poland

Abstract: Cryptographic algorithms and protocols are one of the fundamental building blocks of modern digital systems. Cryptographic schemes provide security functions and by definition lie at the heart of any secure system. As with any heart failure, failures of cryptographic algorithms and implementations tend to be catastrophic. In environments such as hardware components where patching and updates are difficult it may be even more dramatic, leading to long exposure times or even device recalls. In this talk we are going to go through a number of crypto bugs and weaknesses in various systems, from some well-known CVEs to examples of bugs we prevented by our internal security validation activities. These examples will illustrate different classes of deficiencies: algorithmic fragility, design mistakes, implementation errors and validation gaps. The key takeaway of this talk will be suggestions on how to design secure systems to minimize the chance of cryptographic failures.

Krystian Matusiewicz has a broad range of experience in both academic research and industrial security engineering. He received his PhD in cryptography from Macquarie University in Sydney for his work on cryptanalytic attacks on hash functions. He was a postdoctoral researcher at Technical University of Denmark and a lecturer at Technical University of Wroclaw.

Co-author of constructions such as Groestl (NIST SHA-3 finalist) and ICEPOLE (CAESAR competition) he also authored attacks on a number of cryptographic constructions. Currently, he is working at Intel as a security researcher in Platforms Security Division where he oversees security of some of Intel's products and services. He is a member of Intel cryptographic community and puts his passion for cryptanalysis to work by scrutinizing usages of cryptography in products across Intel.

Aspirational Cyber Human Systems
A/Prof. Aisling Kelliher, Inst. for Creativity, Arts, and Technology, USA

Aisling Kelliher is an associate professor of Computer Science at Virginia Tech, with joint appointments in the School of Visual Arts and the Institute for Creativity, Arts, and Technology. Aisling creates and studies interactive media systems for enhancing reflection, learning, healing, and communication. She co-leads the Interactive Neurorehabilitation Lab at Virginia Tech where she works with a team of bioengineers, therapists, doctors, designers, and computer scientists in developing interactive systems for stroke rehabilitation in the home. Aisling is a member of the IEEE MultiMedia editorial board and writes or edits the regular "Artful Media" column. She served as the Paper Chair for ACM Creativity and Cognition in 2017 and for ACM Multimedia in 2016. She is also the regular technology correspondent on the "Culture File" show on Irish national radio. Aisling received a Ph.D. in Media, Arts and Sciences from the MIT Media Lab where she was a member of the Interactive Cinema Group. She also holds an MSc. in Multimedia Systems from Trinity College, Dublin, and a B.A. in Communications Studies from Dublin City University.

Identifying the Conscience of the Computing Profession

Is it even possible - The ACM Code of Ethics Journey

Prof. Don Gotterbarn

Abstract: The ACM recently completed a multi-year project updating its Code of Ethics and Professional Conduct which they undertook because of the profound changes in the way computing interacts with society and now computing changes even the most basic social infrastructures. These changes required an extensive revisiting the ethical responsibilities of computing professionals.

Professional codes of ethics should represent the global conscience of the profession, not narrow political positions. Codes are about societies obligations to the computing professional. Codes should make clear the rights of computing professionals to be free from unethical work demands. Computing professionals are now asked to work on systems which can surreptitiously censor the Internet, gather data on every aspect of our lives, and develop algorithms which amplify existing human biases when they make judgments that affect society and its citizens.

Codes of ethics should make clear the obligations computing professionals have to the profession at large and their obligations to society. These are obligation about how they approach their work and about how they promote an ethical approach to the profession.

Above all, a code should help the computing professional work through complex ethical decisions. It should actually be of some practical use answering questions like how do you hard code ethics into a computer system, how do you make algorithms accountable, and how to address the risk in machine learning systems. It should also fit on an A4 poster.

This talk, using real-world examples from the ACM Code Update project, will focus on several positive lessons learned about the ethics of computing professionals, ethical negotiation in the practice of the profession, and reducing philosophical distractions to practical ethical issues. We shall also discuss ways of facilitating and encouraging professional's attention to the ethical side of technology.

Don Gotterbarn, a Professor Emeritus at East Tennessee State University, is a leading author of the Software Engineering Code of Ethics and Professional Practice, which promotes ethics among software engineers. Active in professional computer ethics for over 20 years, Gotterbarn received the 2005 Outstanding Contribution to ACM Award for his leadership as both an educator and practitioner, and for promoting the ethical behavior of computing professionals and organizations. He received the ACM SIGCAS Making a Difference Award in 2002 for his research and work regarding computer and software engineering ethics. Gotterbarn is also an ACM Distinguished Speaker and chairs the ACM Committee on Professional Ethics. In the mid-1970s, he left a career teaching philosophy and entered the computing field as a consultant for clients that included the US Navy and the Saudi Arabian Navy. He has also worked on the certification of software for vote counting machines and missile defense systems.

Invited talk at ISCIS: Thursday, 20 September, 2018

How better balance the requirements of energy costs and quality of service in computer and communication systems

Prof. Erol Gelenbe, Institute of Theoretical and Applied Informatics of PAS, Gliwice, Poland and ISN Group, EEE Department, Imperial College London

Abstract: ICT is now consuming 5-8% of electrical energy worldwide on average with higher values, around 10%, in the developed countries. The amount is growing worldwide at a rate of roughly 5%, and electricity expenditures are a major part of the costs of telecommunications and computer operations. Due to the resulting environmental impact, this may create some day both cost and societal barriers to the development of ICT. Based on our recent research, we will describe how a computer or communication system can better balance the requirements of energy costs and quality of service. We will also discuss some future technologies that can considerably reduce these expenditures in electrical energy.

Sami Erol Gelenbe is a Turkish-French computer scientist, electronic engineer and applied mathematician who is professor in Computer-Communications at Imperial College. Known for pioneering the field of modelling and performance evaluation of computer systems and networks throughout Europe, he invented the random neural network and the eponymous G-networks. His many awards include the ACM SIGMETRICS Life-Time Achievement Award, and the in Memoriam Dennis Gabor Award of the Hungarian Academy of Sciences.

Optimisation of Extraction-transformation-loading (ETL)

Michał Bodziony, IBM

Abstract: Optimisation of Extraction-transformation-loading (ETL) workflows can be a very complex process. There is a plurality of dimensions in which ETL can be optimised. To name a few: execution time, resource consumption, simplicity of maintenance, reusability and finally total cost of ownership (affected by all the others). On the other side, optimisation can be achieved by many means: datasources tuning, hardware upgrades, parallelisation, pushdown mechanisms and other ELT definition rewritings. Many such optimisations can be already done automatically with proper tooling. There is still a lot of methods waiting for us to be invented and implemented. Together with PUT we investigate efficiency of automated ETL optimisation in area of Hadoop datasources. I am going to provide introduction to these aspects of optimisation supported by real life examples.

Michał Bodziony is a senior performance specialist at IBM. During 20 years of professional experience he played roles of software and performance architect in several projects, always focused on best performance. For several years he was driving architecture of Optim Performance Manager tooling. Then for few years he was a Performance Architect for IBM Pure Data for Analytics (a.k.a Netezza). Recent years he is involved in development of IBM Unified Governance & Integration (focused on

ETL performance and overall portfolio security). He is an author of several patents applications and many publications mostly focused on performance optimisation.

Action Research in Software Engineering - Experiences from Metrics Research

Prof. Mirosław Staroń, University of Gothenburg, Sweden

Abstract: Empirical methods in software engineering have gained increasingly wider acceptance in the last 20 years. Experiments, case studies and surveys are increasingly often published in top software engineering journals and conferences. However, there is one more research method which rapidly gains acceptance and spread - Action Research. Action research is a methodology where industrial practice and scientific research goes hand-in-hand to improve the practice and build new theories in software engineering. In this talk, we go through the principles of action research in general and how they are applied in software engineering. We identify characteristics that make action research in software engineering special and we explore ways how to conduct action research in the best way. The talk finishes with examples of software engineering metrics research at Chalmers | University of Gothenburg, conducted in close collaboration with industrial partners.

Mirosław Staroń is a Professor in Software Engineering at University of Gothenburg, IT Faculty. His research interests include software metrics, mining software repositories, profiling product and organizational performance, Autosar, ISO 26262, automotive software engineering. He has a lot of experience in cooperating with Swedish industry, especially in the area of software metrics and automotive software engineering. More information can be found at http://www.cse.chalmers.se/~miroslaw/

Did Alan Turing see an Enigma machine at Bletchley Park?

Sir John Dermot Turing

Abstract: In the Hollywood blockbuster movie about Alan Turing, *The Imitation Game*, Alan Turing is frequently seen with an Enigma machine - and it's widely assumed that the codebreakers of Bletchley Park had Enigma machines to hand. Actually, the truth is a bit more mysterious, and more complicated. Before July 1939 the British had only the haziest idea of how the German Wehrmacht-model Enigma machine worked, and it may seem miraculous that Alan Turing was able to design a machine method to break Enigma within a few months of the start of the war. How was this possible - and did Alan Turing actually see an Enigma machine?

Dermot Turing graduated from King's College Cambridge and New College Oxford. He spent his career in the legal profession, most recently as a partner of Clifford Chance. Since 2014 he has moved into a more varied range of activities, including an active role as a trustee of Bletchley Park and a volunteer and trustee of the Turing Trust, a charity which sends second-hand computers for a new life in schools in Africa. Dermot Turing is the nephew of Alan Turing and author of a biography on Turing (*Prof: Alan Turing Decoded*, published in 2015 by The History Press) as well as *The Story of Computing*, published by Arcturus in 2018. His most recent book is *X, Y and Z - the real story of how Enigma was broken* (September 2018, The History Press) which explains how the vital groundwork done by Polish code-breakers and French intelligence enabled Alan Turing and the Bletchley Park organisation to achieve its wartime successes.

The impact of emerging information technologies on persons' privacy

Prof. Wojciech Cellary, Department of Information Technology, Poznan University of Economics and Business

Abstract: The growing impact of emerging information technologies such as the internet of things, augmented reality, biometrics, cloud computing and big data on persons' privacy is explained. The modus operandi of several specific privacy destroying technologies is analyzed, as well as mutual dependencies among presented technologies.

Wojciech Cellary received the M.Sc. (1974), Ph.D. (1977) and Dr.Hab. (1981) degrees all from the Technical University of Poznan. In 1989 he received the title of Professor. From 1974 to 1992 he was with the Technical University of Poznan from 1987 to 1991 serving as the scientific director of the Institute of Computing Science. From 1992 to 1996 he served as the vice-president responsible for research of the Franco-Polish School of New Information and Communication Technologies. In 1996 he joined the Poznan University of Economics. Currently he is the head of the Department of Information Technology.

He has been a visiting professor at the following universities in France and Italy: University of Nancy I, University of Nancy II, University of Paris-Sud, University of Paris-Dauphine, University of Genova, and University of Ancona. He has been a leader of numerous research and industrial projects on the development of hardware and software of computer systems and their applications in telecommunications, the computer industry, the electric power industry, education and administration. The projects were supported by Polish, French and American industry, as well as 4th, 5th, and 6th EU Framework Programme. He served as a consultant to the Polish Ministry of Science and Higher Education, Ministry of Administration and Digitalization, Ministry of Telecommunications, Ministry of Regional Development, Ministry of Economy, Polish Parliament, and several research institutes and governmental projects.

He has been involved in organization of 38 scientific national and international conferences and he has been a member of the program committees of an

additional 360 conferences. He is an author or co-author of numerous publications: 11 books, 21 chapters in books, and over 155 articles in journals and conference proceedings. Beside research and teaching his professional activity encompasses consulting, membership in numerous professional organizations, editorial boards of scientific journals, think tanks, committees, councils, and various associations. He is a recipient of many awards for achievements in research and teaching. He supervised 17 PhD Theses, 4 of them received distinction, 1 of them received two awards in the national contests for outstanding PhD Thesis organized by two professional societies. In 2002 he was a representative of Poland at the General Assembly of United Nations devoted to "ICT for Development".

Detailed program of WG 8.9 CONFENIS

Tuesday, 18 September, 2018

Tuesday, 09:30 – 11:00, CONFENIS Session 1: EIS Management and Case Studies

session chair: A Min Tjoa

Enterprise Information Management in Cultural Heritage Domain *Cezary Mazurek, Marcin Werla*

Designing a Technical Debt Visualization Tool to Improve Stakeholder Communication in the Decision-Making Process: A Case Study *Alexia Pacheco, Gabriela Marín-Raventós, Gustavo López*

Facebook Posts Engagement Analysis - Case Study of the Leading e-Shop in the Czech Republic *Antonin Pavlicek, Petr Doucek, Richard Novák*

Tuesday, 11:00 – 11:30, Coffee break

Tuesday, 11:30 – 12:00, WCC 2018 Opening

Tuesday, 12:00 – 13:00, WCC 2018 KEYNOTE

Responsible Data Science in a Dynamic World *Wil van der Aalst*

Tuesday, 13:00 – 14:30, Lunch break

Tuesday, 14:30 – 16:00, CONFENIS Session 2: Data Management & Applications for EIS

session chair: Antonín Pavlíček

A Cost-Effective Data Replica Placement Strategy Based on Hybrid Genetic Algorithm for Cloud Services *Xin Huang, Feng Wu*

Analysis of Industry 4.0 Readiness Indexes and Maturity Models and Proposal of the Dimension for Enterprise Information Systems *Josef Basl*

The Penetration of ICT into the Economy - Technical Infrastructure in the V4 Countries *Petr Doucek, Martina Kuncová, Lea Nedomová*

Tuesday, 16:00 – 16:30, Coffee break

Wednesday, 19 September, 2018

Wednesday, 09:30 – 11:00, CONFENIS Session 3: Collaborative and Social Interaction

session chair: Petr Doucek

Raising Students' Cognitive Engagement Intention in a Preliminary IS Course Using Gamification *Mathupayas Thongmak*

Understanding Enterprise Architects: Different Enterprise Architect Behavioural Styles *Du Preez Jaco, Van der Merwe Alta, Matthee Machde*

Equity Crowdfunding: Quality Signals for Online-Platform Projects and Supporters Motivations *Benjamin Bürger, Andreas Mladenow, Niina Maarit Novak, Christine Strauss*

Wednesday, 11:00 – 11:30, Coffee break

Wednesday, 11:30 – 12:30, WCC 2018 KEYNOTE

The Pros and Cons of Blockchain for Privacy *Jan Camenisch*

Wednesday, 12:30 – 14:00, Lunch break

Wednesday, 14:00 – 15:30, CONFENIS Session 4: Data Access, Security and Privacy

session chair: A Min Tjoa

Software Approaches to Solve IO Determinism *Piotr Wysocki (SW Architect Intel)*

A new schema for securing data warehouse hosted in the cloud *Kawthar Karkouda, Ahlem Nabli, Faiez Gargouri*

Business Process-based Legitimacy of Data Access Framework for Enterprise Information Systems Protection *Hind Benfenatki, Frédérique Biennier*

The design of an identity and access management assurance dashboard model *Ferdinand Damon, Marijke Coetzee*

Wednesday, 15:30 – 16:00, Coffee break

Wednesday, 19:00, Congress grill

Detailed program of IFIP IOT

Tuesday, 18 September, 2018

Tuesday, 09:30 – 11:00, IFIP IOT Session 1

session chair: Leon Strous, The Netherlands

Invited talk: **The Internet of Things is hardly about technology: How it impacts society, business and professions.** *Kees van der Klauw, President of AIOTI, The Netherlands*

While the Internet of Things is enabled by technological advancements in computing, communications and data storage, the success of its applications will largely depend on non-technical matters. Acceptance of use-cases by end users, trust in systems and organizations and redistribution of value in changing business models are just a few examples. Increasingly those aspects become important design factors in the architecture of IoT. What does that mean for professionals in information technology in the future?

Facilitating Factors for The Implementation of Internet of Things: a Public Sector Perspective *Ott Velsberg, Sweden*

Tuesday, 11:00 – 11:30, Coffee break

Tuesday, 11:30 – 12:00, WCC 2018 Opening

Tuesday, 12:00 – 13:00, WCC 2018 KEYNOTE

Responsible Data Science in a Dynamic World *Wil van der Aalst*

Tuesday, 13:00 – 14:30, Lunch break

Tuesday, 14:30 – 16:00, IFIP IOT Session 2

IFIP Position Paper on IoT – presentation and panel discussion

There are many aspects to be looked at when talking about IoT. IFIP contributes to the discussion by investigating what choices can and should be made regarding these various aspects. And by addressing the question what choice various stakeholders should have. IFIP's position on some major questions and choices is presented, followed by a discussion with the participants.

The panel members will address the different perspectives in the IFIP Position Paper and will engage the participants in a discussion about the various position statements that will be presented.

Strategies for Reducing Power Consumption and Increasing Reliability in IoT *Ricardo Reis, Brazil*

An Internet of Things (IoT) Model for Optimising Downtime Management: A Smart Lighting Case Study *Brenda Scholtz, Mando Kapeso, Jean-Paul Van Belle, South Africa*

IoT Enabled Process Innovation: Exploring Sensor-based Digital Service Design Through an Information Requirements Framework *Jesper Svensson, Niclas Carlén, August Forsman, Johan Sandberg, Sweden*

Wednesday, 19 September, 2018

An Internet of Things Based Platform for Real-Time Management of Energy Consumption in Water Resource Recovery Facilities *Mário Nunes, Rita Alves, Augusto Casaca, Pedro Póvoa, José Botelho, Portugal*

A New Reconfgurable Architecture with Applications to IoT and Mobile Computing *Amir Masoud Gharehbaghi, Tomohiro Maruokfa, Masahiro Fujita, Japan*

Unrestricted Sensors: A Hidden Privacy Threat in the Internet of Things *Jacob Kröger, Germany*

The Pros and Cons of Blockchain for Privacy *Jan Camenisch*

Issues in Implementing a Data Integration Platform for Electric Vehicles using the Internet of Things *Martin Smuts, Brenda Scholtz, Janet Wesson, South Africa*

Sailing around IoT Roadblocks: Container Shipping 3.0 for Maersk *Rasmus Ulslev Pedersen, Denmark*

Working with IoT - A Case Study Detailing Workplace Digitalization Through IoT System Adoption *Vikftor Mähler, Ulrikfa Holmström Westergren, Sweden*

Wednesday, 15:30 – 16:00, Coffee break

Wednesday, 16:00 – 17:30, IFIP IOT Session 6

Opportunities for the Internet of Things in the Water, Sanitation and Hygiene Domain *Paula Kotzé, Louis Coetzee, South Africa*

Internet of Things: The present status, future impacts and challenges in Nigerian Agriculture *Funmilayo Bamigboye, Emmanuel Ademola, Nigeria*

IoTutor: How Cognitive Computing Can Be Applied to Internet of Things Education *Suejb Memeti, Sabri Pllana, Mexhid Ferati, Arianit Kurti, Ilir Jusuf, Sweden*

Wednesday, 19:00, Congress grill

Detailed program of BDAS

Tuesday, 18 September, 2018

Tuesday, 09:30 – 11:00, BDAS Session 1: Opening session

session chair: Stanisław Kozielski

BDAS Opening Ceremony *Stanisław Kozielski, Dariusz Mrozek, Paweł Kasprowski*

INVITED TALK: Why Models (NOT Data) are the 'gold of the information age'! *Ralf-Detlef Kutsche*

Tuesday, 11:00 – 11:30, Coffee break

Tuesday, 11:30 – 12:00, WCC 2018 Opening

Tuesday, 12:00 – 13:00, WCC 2018 KEYNOTE

Responsible Data Science in a Dynamic World *Wil van der Aalst*

Tuesday, 13:00 – 14:30, Lunch break

Tuesday, 14:30 – 16:00, BDAS Session 2: Architectures, structures and algorithms for efficient data processing I

session chair: Pedro Martins

SINGLE vs. MapReduce: Predicting Query Execution Time *Maryam Abbasi, Pedro Martins, José Cecílio, João Costa, Pedro Furtado*

EvOLAP Graph - Evolution and OLAP-aware Graph Data Model *Ewa Gumińska, Teresa Zawadzka*

Entropy Aware Adaptive Compression for SQL Column Stores *K.T.Sridhar, Jimson Johnson*

Impact of Storage Space Configuration on Transaction Processing Performance for Relational Database in PostgreSQL *Mateusz Smoliński*

Tuesday, 16:00 – 16:30, Coffee break

session chair: Piotr Wiśniewski

SIMD Acceleration for Main-Memory Index Structures – A Survey *Marten Wallewein-Eising, David Broneske, Gunter Saake*

OpenMP as An Efficient Method to Parallelize Code With Dense Synchronization *Rafał Bocian, Dominika Pawłowska, Krzysztof Stencel, Piotr Wisniewski*

Memory Management Strategies in CPU/GPU Database Systems: A Survey *Iya Arefyeva, David Broneske, Gabriel Campero, Marcus Pinnecke, Gunter Saake*

session chairs: Stanisław Kozielski, Paweł Kasprowski, Dariusz Mrozek

Improved data analysis, a step towards factory 4.0 - a preliminary study in a car assembly plant *Mariusz Rodzen*

How poor is the Poor Man Search Engine *Marta J. Burzańska, Piotr Wiśniewski*

A CANoe-based approach for receiving XML data over the Ethernet *Marek Drewniak, Marcin Fojcik, Damian Grzechca, Michal Kruk*

Experimental measurements of the packet burst ratio parameter *Dominik Samociuk, Andrzej Chydzinski, Marek Barczyk*

Formulation of Composite Discrete Measures for Estimating Uncertainties in Probabilistic Databases *Susmit Bagchi*

The Classification of Music by the Genre Using the KNN Classifier *Daniel Kostrzewa, Robert Brzeski*

EYE: Big Data system supporting preventive and predictive maintenance of robotic production lines *Jarosław Kurpanik, Joanna Henzel, Marek Sikora, Łukasz Wróbel, Marek Drewniak*

Covering approach to action rule learning *Paweł Matyszok, Marek Sikora, Łukasz Wróbel*

The diagnostic system with an artificial neural network for identifying states in multi-valued logic of a device wind power *Dariusz Bernatowicz, Stanisław Duer, Paweł Wrzesień*

The use of minimal geometries in automated building generalization *Michał Lupa, Stanisław Szombara, Krystian Kozioł*

Distributed long-term digital archives *Tomasz Traczyk, Piotr Pałka*

Wednesday, 19 September, 2018

Wednesday, 09:30 – 11:00, BDAS INDUSTRY TALK

INDUSTRY TALK: A Peek into the Evolution of Security Features at Intel. A Brief and Reflective Journey *Dave Novick, Intel*

Wednesday, 11:00 – 11:30, Coffee break

Wednesday, 11:30 – 12:30, WCC 2018 KEYNOTE

The Pros and Cons of Blockchain for Privacy *Jan Camenisch*

Wednesday, 12:30 – 14:00, Lunch break

Wednesday, 14:00 – 15:30, BDAS Session 4: Computational intelligence and data mining I

session chair: Ralf-Detlef Kutsche

Optimization of Approximate Decision Rules Relative to Length *Beata Zielosko, Krzysztof Żabiński*

Genetic Selection of Training Sets for (Not Only) Artificial Neural Networks *Jakub Nalepa, Michal Myller, Szymon Piechaczek, Krzysztof Hrynczenko, Michal Kawulok*

Decision Trees as Interpretable Bank Credit Scoring Models *Andrzej Szwabe, Pawel Misiorek*

Network Mining – how to use social network analysis in BigData world *Łukasz Ryniewicz (Santander)*

Wednesday, 15:30 – 16:00, Coffee break

Wednesday, 16:00 – 17:30, BDAS Parallel Session 5: Computational intelligence and data mining II

session chair: Paweł Kasprowski

Mini-expert platform for Pareto multi-objective optimization of geophysical problems *Adrian Bogacz, Tomasz Danek, Katarzyna Miernik*

ALMM Solver Idea of Algorithm Module *Edyta Kucharska, Krzysztof Raczka*

Expert system supporting the diagnosis of the wind farm equipments *Dariusz Bernatowicz, Stanisław Duer, Paweł Wrzesień*

Wednesday, 16:00 – 17:30, BDAS Parallel Session 6: Natural Language Processing, Ontologies and the Semantic Web

session chair: Luke Immes

An Interactive Knowledge Maintenance Algorithm for Recasting WordNet Synonym-Set Definitions into Lojbanic Primitives, then into Lojbanic English *Luke Immes, Haim Levkowitz*

Tensor-Based Ontology Data Processing for Semantic Service Matchmaking *Andrzej Szwabe, Paweł Misiorek, Michał Ciesielczyk, Jarosław Bąk*

Metadata Reconciliation for Improved Data Binding and Integration *Hiba Khalid, Esteban Zimanyi, Robert Wrembel*

Full-Text Search Extensions for JSON Documents: Design Goals and Implementations *Dusan Petkovic*

Wednesday, 19:00, Congress grill

Thursday, 20 September, 2018

Thursday, 09:30 – 11:00, BDAS Session 7: Big Data and scalable data processing

session chair: Dariusz Mrozek

Big Data migration in a bank - case study *T. Sekman, IBM*

Exploring Spark-SQL-Based Entity Resolution Using the Persistence Capability *Xiao Chen, Roman Zoun, Eike Schallehn, Sravani Mantha, Gunter Saake*

The Use of Distributed Data Storage and Processing Systems in Bioinformatic Data Analysis *Michał Krzesiak, Kamil Folkert, Roman Jaksik, Michał Krzesiak, Marcin Michalak, Marek Sikora, Tomasz Stęclik, Łukasz Wróbel*

Efficient 3D Protein Structure Alignment on Large Hadoop Clusters in Microsoft Azure Cloud *Dariusz Mrozek, Paweł Daniłowicz, Bożena Małysiak-Mrozek*

Thursday, 11:00 – 11:30, Coffee break

Thursday, 11:30 – 12:30, WCC 2018 KEYNOTE

What Needs to be Added to Machine Learning? *Leslie Valiant*

Thursday, 12:30 – 14:00, Lunch break

Thursday, 14:00 – 15:30, BDAS Session 8: Image Processing and biometrics I
chair: Michał Kawulok

Automatic Segmentation of Corneal Endothelium Images with Convolutional Neural Network *Karolina Nurzynska*

Optimal Parameter Search for Colour Normalization Aiding Cell Nuclei Segmentation *Karolina Nurzynska*

Computer software for selected plant species segmentation on airborne images *Sebastian Iwaszenko, Marcin Kelm*

A practical application of skipped steps DWT in JPEG 2000 part 2-compliant compressor *Roman Starosolski*

Thursday, 15:30 – 16:00, Coffee break

Thursday, 16:00 – 17:30, BDAS Session 9: Image Processing and biometrics II
chair: Roman Starosolski

Deep Learning Features for Face Age Estimation: Better than Human? *Krzysztof Kotowski, Katarzyna Stąpor*

B4MultiSR: A Benchmark for Multiple-Image Super-Resolution Reconstruction *Daniel Kostrzewa, Łukasz Skonieczny, Paweł Benecki, Michał Kawulok*

Biometric identification using gaze and mouse dynamics during game playing *Pawel Kasprowski, Katarzyna Harężlak*

Concluding remarks and future plans *Pawel Kasprowski, Dariusz Mrozek*

Detailed program of ISCIS 2018

Thursday, 20 September, 2018

Thursday 09:30 – 11:00, ISCIS Session 1: Systems and Networks

Tandem Networks with Intermittent Energy *Yasin Murat Kadioglu*

Adaptive Allocation of Multi-class Tasks in the Cloud *Lan Wang*

The proposition for mapping between IEEE 802.11 user priorities and access categories, and the flags of the TFD option of the IP *Robert Chodorek, Agnieszka Chodorek*

Design of a Multidomain IMS/NGN Service Stratum *Sylwester Kaczmarek, Maciej Sac*

Thursday, 11:00 – 11:30, Coffee break

Thursday, 11:30 – 12:30, WCC 2018 KEYNOTE

What Needs to be Added to Machine Learning? *Leslie Valiant*

Thursday, 12:30 – 14:00, Lunch break

Thursday, 14:00 – 15:30, ISCIS Session 2: Performance Evaluation

Dynamic Capping of Physical Register Files in Simultaneous Multi-Threading Processors for Performance *Hasancan Güngörer, Gürhan Küçük*

Minimizing latency in wireless sensor networks with multiple mobile base stations *Mehdi Achour, Jamel Belhaj Taher*

Solving large Markov models described with standard programming language *Piotr Pecka, Mateusz Nowak, Artur Rataj, Sławek Nowak*

Performance of a buffer between electronic and all-optical networks, diffusion approximation model *Godlove Suila Kuaban, Edelqueen Anyam, Tadeusz Czachorski, Artur Rataj*

The influence of the traffic self-similarity on the choice of the non-integer order PI-alpha controller parameters *Joanna Domanska, Adam Domanski, Jerzy Klamka, Dariusz Marek, Jakub Szyguła, Tadeusz Czachorski*

Thursday, 16:00 – 16:45, ISCIS INVITED TALK

INVITED TALK: How better balance the requirements of energy costs and quality of service in computer and communication systems *Erol Gelenbe*

Thursday, 16:45 – 18:45, ISCIS Session 3: Data Analysis and Algorithms

Modified Graph-Based Algorithm for Efficient Hyperspectral Feature Extraction *Asma Fejjari, Karim Saheb Ettabaa, Ouajdi Korbaa*

The competitiveness of randomized strategies for Canadians via systems of linear inequalities *Pierre Bergé, Julien Hemery, Arpad Rimmel, Joanna Tomasik*

Modelling and Designing Spatial and Temporal Big Data for Analytics *Sinan Keskin, Adnan Yazici*

Adaptive, hubness-aware nearest neighbour classifier with application to hyperspectral data *Michał Romaszewski, Przemysław Głomb, Michał Cholewa*

Graph Representation and Semi-Clustering Approach for Label Space Reduction in Multi-Label Classification of Documents *Rafał Woźniak, Danuta Zakrzewska*

Online Principal Component Analysis For Evolving Data Streams *Monika Grabowska, Wojciech Kotlowski*

Friday, 21 September, 2018

Friday, 9:30 – 11:00, ISCIS Session 4: Security in Cyber and Physical Systems

Intrusion Detection with Comparative Analysis of Supervised Learning Techniques and Fisher Score Feature Selection Algorithm *Doğukan Aksu, Serpil Üstebay, Muhammed Ali Aydın, Tülin Atmaca*

A new secure and usable Captcha-based graphical password scheme *Altaf Khan, Alexander Chefranov*

An IT tool to support anti-crisis training in WAZkA system: a case study *Wojciech Kulas, Zbigniew Tarapata*

FTScMES: A New Mutation Execution Strategy based on Failed Tests' Mutation Score for Fault Localization *André Oliveira, Celso G. Camilo-Junior, Eduardo Freitas, Auri Marcelo Rizzo Vincenzi*

European Cybersecurity Research and the SerIoT Project *Joanna Domanska, Mateusz Nowak, Sławomir Nowak, Tadeusz Czachorski*

Friday, 11:00 – 11:30, Coffee break

Friday, 11:30 – 12:30, WCC 2018 KEYNOTE

Harnessing Frontier Technologies for Sustainable Development *Shamika N. Sirimanne*

Friday, 12:30 – 14:00, Lunch break

Friday, 14:00 – 15:30, ISCIS Session 5: Machine Learning and Applications

Use of Neural Networks in Q-Learning Algorithm *Nataliya Boyko, Bogdan Dohnyak, Volodymyr Korkishko, Olena Vovk*

The Random Neural Network with a BlockChain Configuration in Digital Documentation *Will Serrano*

A Reinforcement Learning Approach to Adaptive Forwarding in Named Data Networking *Olumide Akinwande, Erol Gelenbe*

Bidirectional action rule learning *Paweł Matyszok, Łukasz Wróbel, Marek Sikora*

Methods of Tooth Equator Estimation *Agnieszka Anna Tomaka, Dariusz Pojda, Leszek Luchowski, Michał Tarnawski*

Friday, 15:30 – 16:00, Coffee break

Friday, 16:00 – 17:00, ISCIS INVITED TALK

INVITED TALK: The impact of emerging information technologies on persons' privacy *Wojciech Cellary*

Friday, 17:00 – 18:30, ISCIS Session 6: Applications to Linguistics, Biology and Computer Vision

A Possibilistic approach for Arabic domain terminology extraction and translation *Wiem Lahbib, Ibrahim Bounhas, Yahya Slimani*

Matrix and tensor-based approximation of 3D face animations from low-cost range sensors *Michał Romaszewski, Arkadiusz Sochan, Krzysztof Skabek*

Enhancing hybrid indexing for Arabic information retrieval *Souheila Ben Guirat, Ibrahim Bounhas, Yahya Slimani*

Identification of factors that affect reproducibility of mutation calling methods in data originating from the next-generation sequencing *Roman Jaksik, Krzysztof Psiuk-Maksymowicz, Andrzej Swierniak*

Detailed program of TC-9 HCC13

Wednesday, 19 September, 2018

Wednesday, 09:30 – 11:00, HCC13

session chair: David Kreps

Welcome and Introductory remarks: *David Kreps, Conference Chair*

INVITED TALK: Identifying the Conscience of the Computing Profession. Is it even possible - The ACM Code of Ethics Journey *Don Gotterbarn*

Wednesday, 11:00 – 11:30, Coffee break

Wednesday, 11:30 – 12:30, WCC 2018 KEYNOTE

The Pros and Cons of Blockchain for Privacy *Jan Camenisch*

Wednesday, 12:30 – 14:00, Lunch break

Wednesday, 14:00 – 15:30, HCC13 Parallel Session 1: This Changes Everything

session chair: Louise Leenen

Do we have what is needed to change everything? A survey of Finnish software businesses on labour shortage and its potential impacts *Sonja Hyrynsalmi, Minna Rantanen, Sami Hyrynsalmi*

PHR, we've had a problem here *Minna Rantanen, Jani Koskinen*

Three views to a school information system: Wilma from a sociotechnical perspective *Olli Heimo, Minna Rantanen, Kai K. Kimppa*

Wednesday, 14:00 – 15:30, HCC13 Parallel Session 2: Sustainability

session chair: Thomas Lennerfors

On The Complex Relationships Between ICT Systems and the Planet *Norberto Patrignani, Iordanis Kavathatzopoulos*

Obsolescence in Information and Communication Technology: A Critical Discourse Analysis *Ines Junge, Maja van der Velden*

Sustainability and eWaste Discussion

Wednesday, 15:30 – 16:00, Coffee break

session chair: Petros Chamakiotis

Team Feedback Intervention and Team Learning in Virtual Teams: A Moderated Mediation Model of Team Cohesion and Personality *Jesus Sanchez Gomez, Ana Zornoza, Virginia Orengo, Vicente Peñarroja, Petros Chamakiotis*

Aware but Not in Control: A Qualitative Value Analysis of the Effects of New Technologies *Kathrin Bednar, Sarah Spiekermann*

Wednesday, 16:00 – 17:00, HCC13 Parallel Session 4: Gender

session chair: Sisse Finken

Feminist Technoscience as a Resource for Working with Science Practices, a Critical Approach, and Gender Equality in Swedish Higher IT Educations *Johanna Sefyrin, Christina Mörtberg, Pirjo Elovaara*

Mind the Gap. Gender and Computer Science Conferences *Antonio Maria Fiscarelli, Sytze Van Herck*

Wednesday, 19:00, Congress grill

Thursday, 20 September, 2018

Thursday, 09:30 – 11:00, HCC13 Parallel Session 5: Gender

chair: Christina Mörtberg

ICT changes everything! But who changes ICT? *Hilde G. Corneliussen, Clem Herman, Radhika Gajjala*

ICT and Sustainable Development: Looking beyond the Anthropocene *Maja van der Velden*

Becoming with in Participatory Design *Sisse Finken, Christina Mörtberg, Pirjo Elovaara*

Thursday, 09:30 – 11:00, HCC13 Parallel Session 6: Law

session chair: Kai K. Kimppa

Do Honest People Pull the Short Straw? The Paradox of Openness *Kiyoshi Murata, Yohko Orito, Miha Takubo*

The legitimacy of cross-border searches through the Internet for criminal investigations *Taro Komukai, Aimi Ozaki*

Discussions on the Right to Data Portability from Legal Perspectives *Kaori Ishii*

Thursday, 11:00 – 11:30, Coffee break

Thursday, 11:30 – 12:30, WCC 2018 KEYNOTE

What Needs to be Added to Machine Learning? *Leslie Valiant*

Thursday, 12:30 – 14:00, Lunch break

Thursday, 14:00 – 15:30, HCC13 Parallel Session 7: This Changed Everything

session chair: Chris Leslie

The Basic Dream of the PC, or "Did you ever play tic-tac-toe"? *Nadia Ambrosetti, Matteo Cantamesse*

History of Early Australian Designed Computers *Arthur Tatnall*

Thursday, 14:00 – 15:30, HCC13 Parallel Session 8: Ethics

session chair: Diane Whitehouse

Artificial Intelligence does not Exist: Lessons from Shared Cognition and the Opposition to the Nature/Nurture Divide *Vassilis Galanos*

The Ethics of Inherent Trust in Care Robots for the Elderly *Adam Poulsen, Oliver Burmeister, David Kreps*

Discussing Ethical Impacts in Research and Innovation: The Ethics Canvas *Kevin Koidl, David Lewis, Harshvardhan J. Pandit, Bert Gordijn*

Thursday, 15:30 – 16:00, Coffee break

Thursday, 16:00 – 17:00, HCC13 Parallel Session 9: Secure Practice

session chair: Judy Van Biljon

Cybersecurity Capability and Capacity Building for South Africa *Joey Jansen van Vuuren, Louise Leenen*

Societal / Social Implications of Artificial Intelligence Discussion

session chair: Charles Ess

Philosophy as the road to good ICT *Iordanis Kavathatzopoulos, Ryoko Asai*

An exploration of opportunities for a theory of information inadequacy *Miranda Kajtazi, Darek Haftor*

All registered attendees at the World Computer Congress are welcome to attend.

Friday, 21 September, 2018

Friday, 9:30 – 11:00, HCC13 Summary Panel
session chair: David Kreps

ICT and Climate Change – What can we do? *David Kreps, Charles Ess, Kai K Kimppa, Louise Leenen, Petros Chamkiotis, Brad McKenna, Thomas Lennerfors, Sisse Finken, Christina Mörtberg, Chris Leslie, Jackie Phahlamohlaka*

Friday, 11:00 – 11:30, Coffee break

Friday, 11:30 – 12:30, WCC 2018 KEYNOTE

Harnessing Frontier Technologies for Sustainable Development *Shamika N. Sirimanne*

Friday, 12:30 – 14:00, Lunch break

Friday, 14:00 – 15:30, HCC13 Parallel Session 11: eWaste Meeting
session chair: David Kreps

All registered attendees at the World Computer Congress are welcome to attend this eWaste Meeting being held as part of the 13th Human Choice and Computers conference. See http://hcc13.net/ewaste-meeting/

Friday, 14:00 – 15:30, HCC13 Parallel Session 12: ICT and an Inclusive Society
co-chairs: Hossana Twinomurinzi, Jackie Phahlamohlaka

Collaboration towards a more inclusive society: the case of South African ICT4D researchers *Judy Van Biljon, Filistea Naude*

Assessing ICT access disparities between the institutional and home front using Activity Theory: A case of university students in South Africa's Eastern Cape *Sam Takavarasha, Liezel Cilliers, Willie Chinyamurindi*

Creating an ICT skills enhancement environment for entrepreneurs *Riana Steyn, Carina de Villiers, Hossana Twinomurinzi*

PANEL: Innovative use of ICT to address South Africas's triple challenges of Poverty, Unemployment and Inequality (30 Minutes)

Panel Chair: Tony Parry, CEO IITPSA

Panelists: All presenters of the papers plus other willing South Africans present will be called upon to participate in the Panel.

Friday, 15:30 – 16:00, Coffee break

Detailed program of TC-11 SEC

Tuesday, 18 September, 2018

Tuesday, 09:30 – 11:00: SEC Opening session

INVITED TALK: Cryptographic failures: how and why they happen *Krystian Matusiewicz*

Tuesday, 09:30 – 11:00

Tuesday, 11:00 – 11:30, Coffee break

Tuesday, 11:30 – 12:00, WCC 2018 Opening

Tuesday, 12:00 – 13:00, WCC 2018 KEYNOTE

Responsible Data Science in a Dynamic World *Wil van der Aalst*

Tuesday, 13:00 – 14:30, Lunch break

Tuesday, 14:30 – 16:00, SEC Parallel Session 1: Authentication weaknesses
session chair: Krystian Matusiewicz

Design Weaknesses in Recent Ultralightweight RFID Authentication Protocols *Paolo D'Arco, Roberto De Prisco*

Attacking RO-PUFs with Enhanced Challenge-Response Pairs *Nils Wisiol, Marian Margraf*

Hunting Password Leaks in Android Applications *Johannes Feichtner*

Tuesday, 14:30 – 16:00, SEC Parallel Session 2: Privacy
session chair: Mirosław Kutyłowski

Assessing Privacy Policies of Internet of Things Services *Niklas Paul, Welderufael B. Tesfay, Dennis-Kenji Kipker, Mattea Stelter, Sebastian Pape*

Usability Characteristics of Security and Privacy Tools: the User's Perspective *Ioanna Topa, Karyda Maria*

JonDonym Users' Information Privacy Concerns *David Harborth, Sebastian Pape*

Tuesday, 16:00 – 16:30, Coffee break

Tuesday, 16:30 – 18:00, SEC Parallel Session 3: Security of systems

session chair: Lech Janczewski

The Tweet Advantage: An Empirical Analysis of 0-Day Vulnerability Information Shared on Twitter *Clemens Sauerwein, Christian Sillaber, Michael Huber, Andrea Mussmann, Ruth Breu*

A Security Analysis of FirstCoin *Alexander Marsalek, Christian Kollmann, Thomas Zefferer*

EMPower: Detecting Malicious Power Line Networks from EM Emissions *Richard Baker, Ivan Martinovic*

Tuesday, 16:30 – 18:00, SEC Parallel Session 4: Passwords

session chair: Yuko SJ Murayama

CPMap: Design of Click-Points Map-based Graphical Password Authentication *Weizhi Meng, Fei Fei, Lijun Jiang, Zhe Liu, Chunhua Su, Jinguang Han*

The Influence of Native Language on Password Composition and Security: A Socioculture Theoretical View *Pardon Blessings Maoneke, Stephen Flowerday, Naomi Isabirye*

A Hypergame Analysis for ErsatzPasswords *Christopher Gutierrez, Mohammed Almeshekah, Eugene Spafford, Saurabh Bagchi*

Wednesday, 19 September, 2018

Wednesday, 09:30 – 11:00, SEC Session 5: Data protection

session chair: Jan Camenisch

Formal Analysis of Sneak-Peek: A Data Centre Attack and its Mitigations *Wei Chen, Yuhui Lin, Vashti Galpin, Vivek Nigam, Myungjin Lee, David Aspinall*

Practical Cryptographic Data Integrity Protection with Full Disk Encryption *Milan Brož, Mikuláš Patočka, Vashek Matyáš*

Detection and response to Data Exfiltration from Internet of Things Android Devices *Mariem Graa, Ivan Marco Lobe Kome, Nora Cuppens-Boulahia, Frédéric Cuppens, Vincent Frey*

Wednesday, 11:00 – 11:30, Coffee break

The Pros and Cons of Blockchain for Privacy *Jan Camenisch*

Wednesday, 12:30 – 14:00, Lunch break

Wednesday, 14:00 – 15:30, SEC Session 6: Security in Web

session chair: Kai Rannenberg

When George Clooney is not George Clooney: Using GenAttack to Deceive Amazon's and Naver's Celebrity Recognition APIs *Keeyoung Kim, Simon Woo*

When Your Browser Becomes The Paper Boy: An Anonymous Browser Network *Juan D. Parra Rodriguez, Eduard Brehm, Joachim Posegga*

On the Integrity of Cross-Origin JavaScripts *Jukka Ruohonen, Joonas Salovaara, Ville Leppänen*

Wednesday, 15:30 – 16:00, Coffee break

Wednesday, 16:00 – 18:00, SEC Session 7: Malware

session chair: Nora Cuppens

Smashing the Stack Protector for Fun and Profit *Bruno Bierbaumer, Julian Kirsch, Thomas Kittel, Aurélien Francillon, Apostolis Zarras*

Follow the WhiteRabbit: Towards Consolidation of On-the-Fly Virtualization and Virtual Machine Introspection *Sergej Proskurin, Julian Kirsch, Apostolis Zarras*

Anti-forensic = Suspicious: Detection of Stealthy Malware that Hides its Network Traffic *Mayank Agarwal, Rami Puzis, Jawad Haj-Yahya, Polina Zilberman, Yuval Elovici*

Wednesday, 19:00, Congress grill

Thursday, 20 September, 2018

Thursday, 09:30 – 11:00, SEC Parallel Session 8: Data analysis

session chair: Frédéric Cuppens

PRETT: Protocol Reverse Engineering Using Binary Tokens and Network Traces *Choongin Lee, Jeonghan Bae, Heejo Lee*

Walking Through the Deep: Gait Analysis for User Authentication through Deep Learning *Giacomo Giorgi, Fabio Martinelli, Andrea Saracino, Mina Sheikhalishahi*

Optimal Security Configuration for Cyber Insurance *Ganbayar Uuganbayar, Artsiom Yautsiukhin, Fabio Martinelli*

Thursday, 09:30 – 11:00, SEC Parallel Session 9: Behavior and side channels

session chair: Jukka Ruohonen

Efficient Identification of Applications in Co-Resident VMs via a Memory Side-Channel *Jens Lindemann, Mathias Fischer*

Performance Improvements in Behavior Based Malware Detection Solutions *Gheorghe Florin, Gheorghe Hăjmăşan, Alexandra Mondoc, Radu Marian Portase, Octavian Creţ*

An Evaluation of Bucketing in Systems with Non-Deterministic Timing Behavior *Yuri Gil Dantas, Richard Gay, Tobias Hamann, Heiko Mantel, Johannes Schickel*

Thursday, 11:00 – 11:30, Coffee break

Thursday, 14:00, SEC Closing Session

Detailed program of TC-11 WISE

Tuesday, 18 September, 2018

Tuesday, 09:15 – 11:00, WISE11 Session 1

session chair: Lynn Futcher

Welcome by IFIP WG 11.8 Chair *Lynn Futcher*

A Design for a Collaborative Make-the-Flag Exercise *Matt Bishop*

Forming the Abilities of Designing Information Security Maintenance Systems in the Implementation of Educational Programmes in Information Security *Vladimir Budzko, Natalia Miloslavskaya, Alexander Tolstoy*

Factors Influencing Smartphone Application Downloads *Wiehan Janse Van Rensburg, Kerry-Lynn Thomson, Lynn Futcher*

The feasibility of raising information security awareness in an academic environment using SNA *Rudi Serfontein, Lynette Drevin, Hennie Kruger*

Tuesday, 11:00 – 11:30, Coffee break

Tuesday, 11:30 – 12:00, WCC 2018 Opening

Tuesday, 12:00 – 13:00, WCC 2018 KEYNOTE

Responsible Data Science in a Dynamic World *Wil van der Aalst*

Tuesday, 13:00 – 14:30, Lunch break

Tuesday, 14:30 – 16:00, WISE11 Session 2

session chair: Rossouw von Solms

A MOOC on Privacy by Design and the GDPR *Simone Fischer-Hübner, Leonardo Martucci, Lothar Fritsch, Tobias Pulls, Sebastian Herold, Leonardo Iwaya, Stefan Alfredsson, Albin Zuccato*

A Pilot Study in Cyber Security Education using CyberAIMs: A Simulation-Based Experiment *Erjon Zoto, Stewart Kowalski, Christopher Frantz, Edgar Alonso Lopez-Rojas, Basel Katt*

A National Certification Programme for Academic Degrees in Cyber Security *Steven Furnell*

session chair: Matt Bishop

Developing Hands-On Laboratory Works for the "Information Security Incident Management" Discipline *Natalia Miloslavskaya, Alexander Tolstoy*

ForenCity: A Playground for Self-Motivated Learning in Computer Forensics *Wai Sze Leung, Frans Blauw*

Wednesday, 19 September, 2018

session chair: Lynn Futcher

INVITED TALK *Moira de Roche (IP3)*

session chair: Lynette Drevin

Towards educational guidelines for the security systems engineer *Sune von Solms, Annlize Marnewick*

Identifying the Cybersecurity Body of Knowledge for a Postgraduate Module in Systems Engineering *Sune von Solms, Lynn Futcher*

The Pros and Cons of Blockchain for Privacy *Jan Camenisch*

session chair: Steven Furnell

SecTech Workshop *SecTech Project Team*

- **Introduction to SecTech**
- **Presentation of ACM curriculum model** *Matt Bishop*

- **Presentation of SecTech curriculum example**
- **Mapping the example to the model**
- **Demonstration and questions**

Wednesday, 15:30 – 16:00, Coffee break

Wednesday, 16:00 – 17:00, WISE11 Panel Discussion

session chair: Steven Furnell

SecTech Project

Wednesday, 19:00, Congress grill

Thursday, 20 September, 2018

Thursday, 09:00 – 10:15, WISE11 Panel Discussion

session chair: Sy Goodman

Building National Cybersecurity Workforces *Sy Goodman, Rossouw von Solms, Matt Bishop, Stephen Furnell*

Thursday, 10:15 – 10:55, WISE11 Session 6

session chair: Natalia Miloslavskaya

Cyber Ranges and Cyber Challenges/Competitions a Proposal to form a new TC11.8 Work Group *Stewart Kowalski, Basel Katt, Espen Torseth, Kirsi Helkala, Geir Olav Dyrkolbotn*

Thursday, 10:55 – 11:00, WISE11 Closing: Lynn Futcher

Thursday, 11:00 – 11:30, Coffee break

Thursday, 11:30 – 12:30, WCC 2018 KEYNOTE

What Needs to be Added to Machine Learning? *Leslie Valiant*

Thursday, 12:30 – 13:30, Lunch break

Thursday, 13:30 – 15:00

session chair: Lynn Futcher

IFIP WG 11.8 AGM and Strategic Planning Workshop *IFIP WG11.8 members*

Thursday, 15:30 – 16:00, Coffee break

Detailed program of TC-14 ICEC

Monday, 17 September, 2018

Monday, 09:30 – 18:00, ICEC Parallel Session: Tutorial (Full Day) Bio-Sensing Platforms for "Wellness Entertainment" System Design

TUTORIAL: Bio-Sensing Platforms for "Wellness Entertainment" System Design *Yoichi Nagashima, SUAC/ASL, Japan*

This is a "hands-on" lecture/workshop intended for the designer/ artist/therapist of the interactive system for "wellness entertainment". In recent years, the fields of serious games and medical/welfare/ rehabilitation applications are gaining attention in the field of entertainment computing. The organizer of this workshop has been promoting R & D activities in this area for over 20 years, and recently targeting "Wellness" or "Well-being" entertainment using bio-sensing technology. This lecture/workshop contains four parts of practical techniques/ideas to realize effective interactive system for "wellness entertainment" - environment & interface, concept of biofeedback, special techniques using commercial bio-sensors and cutting-edge topics.

Monday, 09:30 – 11:00, ICEC Parallel Session: Workshop 1: Entertainment Computation – A Key for Improving and Reducing Gender Gap?

session chairs: Javier Gomez, Letizia Jaccheri, Jannicke Baalsrud Hauge

INVITED TALK *Aisling Kelliher, Inst. for Creativity, Arts, and Technology, USA*

Who Will Be the Leaders in Top Academic Positions in Entertainment Computing? *Letizia Jaccheri, Soudabeh Khodambashi, Katrien De Moor, Ozlem Ozgobek, Katina Kralevska*

Serious Games in Special Education. A Practioner's Experience Review *Guadalupe Montero, Javier Gomez*

Perspectives on Accessibility in Digital Games *Jannicke Baalsrud Hauge, Neil Judd, Ioana Andreea Stefan, Antoniu Stefan*

Adult Perception of Gender-Based Toys and their Influence On Girls' Careers in STEM *Serena Lee-Cultura, Katerina Mangaroska, Kshitij Sharma*

Monday, 11:30 – 13:00, ICEC Parallel Session: Workshop 1: Entertainment Computation – A Key for Improving and Reducing Gender Gap? (CON'T)

session chairs: Javier Gomez, Letizia Jaccheri, Jannicke Baalsrud Hauge

Monday, 14:30 – 16:00, ICEC Parallel Session: Workshop 2: Designing Entertainment for the Aging Population (DEAP'18)

session chairs: Paula Alexandra Silva, Masood Masoodian

Storytelling: A Medium for Co-design of Health and Well-being Services for Seniors *Leah Burns, Masood Masoodian*

User-Centered Design of an Online Mobile Game Suite to Affect Well-Being of Older Adults *Isabelle Kniestedt, Stephan Lukosch, Frances Brazier*

Providing Life-style-Intervention to Improve Well-Being of Elderly People *Thomas Rist, Andreas Seiderer, Elisabeth André*

Intergenerational Joint Media Engagement: pre-testing interviews, activities and tablet's applications *Ana Carla Amaro, Lidia Oliveira, Vania Baldi*

Physical Activity Among Older Adults: A Meta-Review of EU-Funded Research Projects *Paula Alexandra Silva*

Monday, 16:30 – 18:00, ICEC Parallel Session: Workshop 2: Designing Entertainment for the Aging Population (DEAP'18) (CON'T)

session chair: Paula Alexandra Silva, Masood Masoodian

Tuesday, 18 September, 2018

Tuesday, 09:30 – 10:00, ICEC OPENING

Opening Address *Artur Lugmayr, Kathrin Gerling, Esteban Clua, Licino Roque*

Tuesday, 10:00 – 11:00, ICEC INVITED TALK, Ellen Yi Luen Do

INVITED TALK: From Design Computing to Creating Unique Technologies for Everyone *Ellen Yi-Luen Do, ATLAS Inst., Univ. of Colorado Boulder, USA*

Tuesday, 11:00 – 11:30, Coffee break

Tuesday, 11:30 – 12:00, WCC 2018 Opening

Tuesday, 12:00 – 13:00, WCC 2018 KEYNOTE

Responsible Data Science in a Dynamic World *Wil van der Aalst*

Tuesday, 13:00 – 14:30, Lunch break

Tuesday, 14:30 – 16:00, ICEC Session 1: Human-Computer Interaction
session chair: Radu-Daniel Vatavu

Dynamic Projection Mapping on Multiple Non-Rigid Moving Objects for Stage Performance Applications *Ryohei Nakatsu, Ningfeng Yang, Hirokazu Takata, Takashi Nakanishi, Makoto Kitaguchi, Naoko Tosa*

Applying Designing Thinking techniques for prototyping a universal game controller *Gabriel Ferreira Alves, Emerson Vitor Souza, Daniela Gorski Trevisan, Anselmo Antunes Montenegro, Luciana Cardoso de Castro Salgado, Esteban Walter Gonzalez Clua*

Intimate Information Access through Virtual Creatures *Kota Gushima, Tatsuo Nakajima*

Validating the Creature Believability Scale for Videogames *Nuno Barreto, Rui Craveirinha, Licinio Roque*

Dance Dance Gradation: a generation of fine-tuned dance charts *Yudai Tsujino, Ryosuke Yamanishi*

Tuesday, 16:00 – 16:30, Coffee break

Tuesday, 16:30 – 18:00, ICEC Session 2: Entertainment Systems & Technology
session chair: Zvezdan Vukanovic

Diminishing Reality *Andreas Hackl, Helmut Hlavacs*

Live Probabilistic Editing for Virtual Cinematography *Luiz Velho, Leonardo Carvalho, Djalma Lucio*

The Programmable Drone for STEM Education *Patrik Voštinár, Dana Horváthová, Nika Klimová*

A Taxonomy of Synchronous Communication Modalities in Online Games *Quentin Gyger, Nicolas Szilas*

The influence of digital convergence/divergence on digital media business models *Zvezdan Vukanovic*

session chair: Javier Gomez, Benedict Berger

Data Reduction of Indoor Point Clouds *Stephan Feichter, Helmut Hlavacs (Poster)*

Designing 'Wall Mounted Level' - A Cooperative Mixed-Reality Game about Reconciliation *Scott Swearingen, Kyoung Swearingen (Poster)*

Automatic Generation of the Periodic Hair Motion of 3D Characters for Anime Production *Kenji Furukawa, Susumu Nakata (Poster)*

An iTV prototype for content unification *Jorge Abreu, Pedro Almeida, Ana Velhinho, Sílvia Fernandes, Rafael Guedes (Poster)*

Content unification: a trend reshaping the iTV ecosystem *Jorge Abreu, Pedro Almeida, Sílvia Fernandes, Ana Velhinho, Ana Rodrigues (Poster)*

Creating art installation in Virtual Reality. The Stilleben Project *Jan K. Argasiński (Poster)*

A mixed-reality serious game to tackle a public health problem *Tiago Lima, Carlos Niquini, Breno Barbosa, Clodoveu Davis Jr. (Poster)*

Converging Data Storytelling and Visualisation *Yangjinbo Zhang (Poster)*

A systematic mapping on game-related methods to tackle a public health problem *Tiago Lima, Clodoveu Augusto Davis Jr. (Poster)*

NOVELICA: A Visual Novel System to Make People Forget Their Negative Feelings on Mathematics *Nobumitsu Shikine, Toshimasa Yamanaka, Letizia Jaccheri, Javier Gomez, Junichi Hoshino (Demonstration)*

Imperceptible Art *Aleksandra Vasovic (Art Exhibit)*

Tappetina: an Ecosystem of Art, Software, and Research *Letizia Jaccheri, Javier Gomez, Sindre B. Skaraas (Art Exhibit)*

Wednesday, 19 September, 2018

Wednesday, 09:30 – 11:00, ICEC Session 3: VR and AR

session chair: Licino Roque

Mixed Reality Cycling in an Infinite Procedurally Generated City *Wesley Oliveira, Werner Gaisbauer, Michelle Tizuka, Esteban Clua, Helmut Hlavacs*

Aspects that need to be addressed during the development of location-based games *Jacques Barnard, Magda Huisman, Gunther Drevin*

Circus Noel: A case study on natural user interface design for VR *Mirjam Vosmeer, Alyea Sandovar*

Reorientation Method to Suppress Simulator Sickness in Home VR Contents Using HMD *Yuki Ueda, Junichi Hoshino*

A.R.M. – Augmented Reality Muscularity *Dirk Sweere, Martin Hughes, Martijn van Laar, Lisa Rombout*

Wednesday, 11:00 – 11:30, Coffee break

Wednesday, 11:30 – 12:30, WCC 2018 KEYNOTE

The Pros and Cons of Blockchain for Privacy *Jan Camenisch*

Wednesday, 12:30 – 14:00, Lunch break

Wednesday, 14:00 – 15:00, TC-14 ICEC INVITED TALK

INVITED TALK: Aspirational Cyber Human Systems *Aisling Kelliher, Inst. for Creativity, Arts, and Technology, USA*

PANEL: Robot Competition *David David Obdrazalek, Richard Balogh, Artur Lugmayr*

Robot competitions are more and more used as a tool for education as well as an entertainment activity. This workshop brings together organizers, participants, teachers, and other people interested to share best practices, discuss issues and possibly improve their work. The main objectives of this workshop are to gather organizers of different robot competition events, competition participants, teachers, and other interested people from various environments to: – foster establishing of a network of organizers and their events to support participants exchanges and to motivate them to attend also other than local events, – connect the workshop participants to share best practices, discuss issues and possibly improve their work.

Wednesday, 15:30 – 16:00, Coffee break

Wednesday, 16:00 – 17:30, ICEC Session 4: Digital Games

session chair: Jussi Holopainen

Games That Make Curious: An Exploratory Survey into Digital Games That Invoke Curiosity *Marcello A. Gómez Maureira, Isabelle Kniestedt*

Learning to Identify Rush Strategies in StarCraft *Teguh Budianto, Hyunwoo Oh, Takehito Utsuro*

Virtual Reality as e-Mental Health to Support Starting with Mindfulness-Based Cognitive Therapy *Koen H. B. Damen, Erik D. van der Spek*

Engagement in Interactive Digital Storytelling: Sampling without spoiling *Sergio Estupinan, Kasper Ingdahl Andkjær, Nicolas Szilas*

Playing with Empathy through a Collaborative Storytelling Game *Sindre Skaraas, Javier Gomez, Letizia Jaccheri*

Wednesday, 18:00 – 19:00, ICEC Doctoral Consortium

session chair: Letizia Jaccheri

Affecting Well-Being Through Digital Games *Isabelle Kniestedt*

A Game-Based Plattform to Tackle a Public Health Problem *Tiago França Melo Lima, Clodoveu Augusto Davis Jr.*

Wednesday, 19:00, Congress grill

Thursday, 20 September, 2018

Thursday, 09:30 – 11:00, ICEC Session 5: Storytelling, Narratives, and Behaviors

chair: Javier Gomez

Design and evaluation of a fall prevention multi-player game for senior care centres *Joana Silva, Elsa Oliveira, Dinis Moreira, Francisco Nunes, Martina Čaić, João Madureira, Eduardo Pereira*

Comedy in the Ludonarrative of Video Games *Oskari Kallio, Masood Masoodian*

Construction of mixed reality story environment based on real space shape *Kazuma Nagata, Junichi Hoshino*

Digital Therapies *Robert J. Wierzbicki*

Thursday, 11:00 – 11:30, Coffee break

Thursday, 11:30 – 12:30, WCC 2018 KEYNOTE

What Needs to be Added to Machine Learning? *Leslie Valiant*

Thursday, 12:30 – 14:00, Lunch break

Thursday, 14:00 – 15:30, ICEC Session 6: Entertainment Business, Information Systems, and Media Studies

session chair: Helmut Hlavacs

Physiological Affect and Performance in a Collaborative Serious Game between Humans and an Autonomous Robot *Petar Jerčić, Johan Hagelbäck, Craig Lindley*

Analysis of the effect of number of players on the excitement of the game with respect to fairness *Sagguneswaraan Thavamuni, Hiroyuki Iida, Hadzariah Ismail*

Sensor Ball Raffle – gamification of billboard advertising: How to engage the audience? *Sari Järvinen, Johannes Peltola and Paul Kemppi*

Realtime Musical Composition System for Automatic Driving Vehicles *Yoichi Nagashima*

Thursday, 15:30 – 16:00, Coffee break

Thursday, 16:00 – 16:30, ICEC INVITED TALK

INVITED TALK: AR and VR Near You *Nikolay Nikolov*

Augmented reality and Virtual reality open people imagination today. Everyone can explore it using smart devices. Invest your time now in smart AR and VR technology and bring new horizons to your products and services.

Closing Address *Artur Lugmayr, Kathrin Gerling, Esteban Clua, Licino Roque*

Detailed program of WG 9.7 HCEE

Wednesday, 19 September, 2018

Wednesday, 09:30 – 11:00, WG 9.7 HCEE Session 1

László Kalmár and the First University Level Programming and Computer Science Training in Hungary *Mate Szabo*

The Emergence of Computing Disciplines in Communist Czechoslovakia: What's in a (Sovietized) Name? *Michal Doležel, Zdeněk Smutný*

Wednesday, 11:00 – 11:30, Coffee break

Wednesday, 11:30 – 12:30, WCC 2018 Keynote

The Pros and Cons of Blockchain for Privacy *Jan Camenisch*

Wednesday, 12:30 – 14:00, Lunch break

Wednesday, 14:00 – 15:30, WG 9.7 HCEE Session 2

Prerequisites for the Creation of the Main Computer Center of GOSPLAN of the USSR *Vladimir Kitov*

50 years of the Cybernetics Faculty of MUT: Experiences, Achievements and Perspectives *Piotr Kosiuczenko*

Armenian Computers: First Generations *Sergey B. Oganjanyan, Valery V. Shilov, and Sergey A. Silantiev*

Wednesday, 15:30 – 16:00, Coffee break

Wednesday, 16:00 – 17:30, WG 9.7 HCEE Session 3

Early Computers Development in Poland *Marek Hołyński*

Basic Telemonitors of the Third Generation Computers in the USSR *Vladimir Kitov*

Anatoly Kitov and Victor Glushkov - Pioneers of Russian Digital Economy and Informatics *Olga V. Kitova, Vladimir A. Kitov*

Wednesday, 19:00, Congress grill

Thursday, 20 September, 2018

Thursday, 09:30 – 11:00, WG 9.7 HCEE Session 4

Cooperating with Moscow, Stealing in California: PPR's Legal and Illicit Acquisition of Know-How in the Area of Microelectronics in 1960-1990 *Miroslaw Sikora*

In Fear of Convergence? The Import of Western Computer Technology in the GDR; or, Following the Traces of a Machine through the Iron Curtain: The Computer Import of GDR's State Bank in the 1960s *Martin Schmitt*

Cocom, Comecon, Chincom, and Dot-Com: Technological Determinism in Economic Blockades, 1949-1994 *Christopher Leslie*

Thursday, 11:00 – 11:30, Coffee break

Thursday, 11:30 – 12:30, WCC 2018 Keynote

What Needs to be Added to Machine Learning? *Leslie Valiant*

Thursday, 12:30 – 14:00, Lunch break

Thursday, 14:00 – 15:30, WG 9.7 HCEE Session 5

Israel Abraham Staffel: New Evidences *Timo Leipälä, Valery V. Shilov, Sergey A. Silantiev*

Mathematicians at the Scottish Café *Chris Zielinski*

Discovering Eastern European PCs by Hacking Them. Today *Stefano Bodrato, Fabrizio Caruso, Giovanni A. Cignoni*

Thursday, 15:30 – 16:00, Coffee break

Thursday, 16:00 – 17:30, WG 9.7 HCEE Session 6

ICT History study as Corporate Philanthropy in Latvia *Inara Opmane, Rihards Balodis*

The Engineering Heritage of Bashir Rameev at the Polytechnic Museum. To the 100th Anniversary of His Birth *Marina Smolevitskaya*

Twentieth Anniversary of the Russian Virtual Museum of Computers and Information Technology History *Vladimir Kitov, Alexander Nitusov, Edward Proydakov*

Friday, 21 September, 2018

Friday, 9:15 – 11:00, Bombe Demonstration at Poznan Supercomputer Centre

chair: Roger Johnson

Introduction and Welcome *Roger Johnson*

Crib Message, and Message 1 Sent to Bletchley Park *Marek Wojciechowski*

Brief video welcome to The National Museum of Computing *Helen Jarvis*

INVITED TALK: Did Alan Turing see an Enigma machine at Bletchley Park? *Dermot Turing*

Friday, 11:00 – 11:30, Coffee break

Friday, 11:30 – 12:30, WCC 2018 Keynote

Harnessing Frontier Technologies for Sustainable Development *Shamika N. Sirimanne*

For students at Enigma live: tour of Supercomputer Centre during keynote time

Video link to Bombe will be kept open for webcast recipients

Friday, 12:30 –13:45, Lunch break

Friday, 13:45 – 15:45, Bombe Demonstration at Poznan Supercomputer Centre

chair: Roger Johnson

Video link to the National Museum of Computing – Progress Report *Helen Jarvis*

INVITED TALK: How the Poles Broke Enigma *Marek Grajek*

Poznan Enigma Museum *Marek Grajek*

Final Report from TNMoC *Helen Jarvis/ Paul Kellar*

Closing Comments

Friday, 15:45 – 16:00, Coffee break

Detailed program of SemBDM

Tuesday, 18 September, 2018

Tuesday, 09:30 – 11:00, SemBDM Session 1

session chair: Paolo Ceravolo

An Approach to Handle Big Data Warehouse Evolution *Darja Solodovnikova, Laila Niedrite*

Evaluation of Semantic Metadata Pair Modelling Using Data Clustering *Hiba Khalid*

Visual Non-verbal Behavioral Analysis Systems Metadata Modeling *Mahmoud Qodseya, Franck Jeveme Panta, Mahdi Washha, Florence Sèdes*

Tuesday, 11:00 – 11:30, Coffee break

Tuesday, 11:30 – 12:00, WCC 2018 Opening

Tuesday, 12:00 – 13:00, WCC 2018 KEYNOTE

Responsible Data Science in a Dynamic World *Wil van der Aalst*

Tuesday, 13:00 – 14:30, Lunch break

Tuesday, 14:30 – 16:00, SemBDM Session 2

Integration of relational and graph databases functionally *Jaroslav Pokorný*

SQL Design Patterns with the GDPR application *Martin Navratil, Monika Borkovcova*

Personalized Recommendation of Movies Using a Combined approach of locality sensitive hashing, K-Nearest neighbour and collaborative filtering *Chathuri Kumari*

Tuesday, 16:00 – 16:30, Coffee break

Computer System for Designing Musical Expressiveness in an Automatic Music Composition Process *Michele Della Ventura*

Optimizing access with ORM frameworks and relationships when entities using PHP and doctrine *Filip Majerik, Monika Borkovcova*

Detailed program of ITDRR-2018

Friday, 21 September, 2018

Friday, 9:30 – 11:00, ITDRR Session 1

session chair: Yuko Murayama

Recovery Watcher - a Disaster Communication System for Situation Awareness and its Use for Barrier-Free Information Provision *Yuko Murayama, Kayoko Yamamoto, Jun Sasaki*

Universally Designed Beacon-Assisted Indoor Navigation for Emergency Evacuations *G. Anthony Giannoumis, Terje Gjøsæter, Jaziar Radianti*

Preparing a Smart Environment to Decision-Making in Emergency Traffic Management *Jacimar Tavares, Marcos Borges*

State of the Art of Groupware Technologies in Emergency Management *Jacimar Tavares, Leandro Gonçalves, Patrícia Gurgel, Marcos Borges*

CBRN Risk Analysis Using Analytical Tools of the WAZKA System *Zbigniew Tarapata, Ryszard Antkiewicz, Dariusz Pierzchala, Jaroslaw Rulka*

Friday, 11:00 – 11:30, Coffee break

Friday, 11:30 – 12:30, WCC 2018 KEYNOTE

Harnessing Frontier Technologies for Sustainable Development *Shamika N. Sirimanne*

Friday, 12:30 – 14:00, Lunch break

Friday, 14:00 – 15:30, ITDRR Session 2

session chair: Jose J. Gomzalez

Vulnerability Analysis of Interdependent Critical Infrastructures *Tor-Edin Farstad, Ahmed Abdeltawab Abdelgawad, Jose J. Gonzalez*

Micro Failure Region Models Inducing Massive Correlated Failures on Network Topologies *Nicolás Boettcher, Yasmany Prieto, Jorge E. Pezoa*

Investigating the Disaster Preparedness of Iranian Hospitals in Disaster Events *Seyed Payam Salamati Nia, Kaushal Keraminiyage, Udayangani Kulatunga, Somayeh Valadi*

Organizational Features in Disaster Risk Management Systems *Yury Alejandra Castillo Manyoma, Nicolas Daniel Gómez Reyes, Luz Esperanza Bohorquez*

Content Analyses of the International Federation of Red Cross and Red Crescent Societies (IFRC) Through Twitter *Türkay Derelİ, Nazmiye Çelik, Cihan Çetİnkaya*

Friday, 15:30 – 16:00, Coffee break

Friday, 16:00 – 17:30, ITDRR Session 3

session chair: Dimiter Velev

Five Seconds to Get out - Searching for Best Ways to Use Smartphone for Earthquake Early Warnings *Eran Lederman, Tomer Shemi, Noga Ensenberg-Diamant, Lior Shalev, Amir Hazan, Naama Marcovits, Yona Weitz, Or Haklai, Tal Badichi, Bar Segal, Dan Fishbein, Hillel Aviezer*

Real-Time Tornado Forecasting using SLHGN *Benny Benyamin Nasution, Rahmat Widia Sembiring, Muhammad Syahruddin, Nursiah Mustari, Abdul Rahman Dalimunthe, Nisfan Bahri, Bertha br Ginting, Zulkifli Lubis*

Tweeting about Floods of Kalamata, Messinia (Greece, September 2016) - Towards a Precise Methodology for Mapping Extracted Information, Effectively for Disaster Management Purposes *Stathis G. Arapostathis*

Strategy of Effective Decision-making in Planning and Elimination of Consequences of Emergency Situations *Igor Grebennik, Viktor Reshetnik, Ata Ovezgeldyyev, Valerii Ivanov, Inna Urniaieva*

Geological-Geimorphological Features of River Catchments in Flood Hazard Modelling *Valentina Nikolova, Plamena Zlateva*

Augmented/Virtual Reality Application in Disaster Preparedness Training for Society Resilience *Dimiter Velev, Wei-Sen Li, Yanling Lee, Plamena Zlateva*

Detailed program of IT Research Workshop

Thursday, 20 September, 2018

Thursday, 09:30 – 11:00, IT Research Session 1
session chair: Andrzej Jaszkiewicz

INVITED TALK: Optimisation of Extraction-transformation-loading (ETL) *Michał Bodziony (IBM)*

INVITED TALK: Action Research in Software Engineering - Experiences from Metrics Research *Mirosław Staroń (University of Gothenburg)*

INVITED TALK: IT Challenges in Healthcare *Paweł Pyszlak (Roche)*

Thursday, 11:00 – 11:30, Coffee break

Thursday, 11:30 – 12:30, WCC 2018 KEYNOTE

What Needs to be Added to Machine Learning? *Leslie Valiant*

Thursday, 12:30 – 14:00, Lunch break

Thursday, 14:00 – 15:30, IT Research Session 2
session chair: Krzysztof Krawiec

AI in Adverse Event Detection in Digital Media Background *Elżbieta Maniakowska (Roche)*

Ethical Analysis of Personal Medical Data in the Era of Artificial Intelligence *Krzysztof Bokiej (Roche)*

1st Pass Coding - supporting the work of clinical coders, Building a tool to support clinical coders in the classification of reported Adverse Event terms to MedDRA medical terms *Bartosz Baranowski (Roche)*

Tackling important Healthcare challenges through a Data Science competition on Real World Data. Building a top performing model for predicting mortality risk in cancer patients *Marcin Siatkowski (Roche)*

Thursday, 15:30 – 16:00, Coffee break

session chair: Mikołaj Morzy

A Distributed Key-Value Store for Petascale Hot Storage in Data Acquisition Systems *Grzegorz Jereczek, Fabrice Le Goff, Pawel Lebioda, Giovanna Lehmann Miotto, Jeremy Love, Maciej Maciejewski, Pawel Makowski, Remigius K Mommsen, Piotr Pelplinski, Jakub Radtke, Malgorzata, Szychowska, Jakub Schmiegel (Intel)*

Machine learning based approach to optimization of complex computing ecosystems *Artur Klepaczko, Marcin Cichosz, Mateusz Nawrocki (TomTom)*

Cloud Brokering and Internet Shopping: A Perfect Place for Applied Science *Jędrzej Musiał (Poznan University of Technology)*

Challenges in high volume validation of modern, complex, embedded systems *Mateusz Kowzan, Marek Zmuda, Andrzej Jaszkiewicz (Intel, Poznan University of Technology)*

Organizational versus Technical Excellence – what Boosts IT Projects in International Environment *Bartłomiej Gawin, Bartosz Marcinkowski (Sescom, University of Gdańsk)*

Thursday, 19:00, Workshop Dinner

Friday, 21 September, 2018

Friday, 9:30 – 11:00, IT Research Session 4

session chair: Krzysztof Dembczyński

INVITED TALK: Vehicle Routing Problem - problem formulations, solution methods, challenges *Jacek Mańdziuk (Warsaw University of Technology)*

INVITED TALK: The Challenges of Modern Data Centers *Marek Zmuda, Mariusz Oriol (Intel)*

INVITED TALK: Fine-grained classification *Hagop Boghazdeklian, Carmine Paolino (OLX)*

Friday, 11:00 – 11:30, Coffee break

Friday, 11:30 – 12:30, WCC 2018 KEYNOTE

Harnessing Frontier Technologies for Sustainable Development *Shamika N. Sirimanne*

Friday, 14:00 – 15:30, IT Research Session 5

session chair: Jędrzej Musiał

Implementation of biometric speech processing in business oriented systems *Radosław Weychan, Tomasz Marciniak, Adam Dąbrowski (Capgemini, Poznan University of Technology)*

Artificial Intelligence in the Medical World ECONIB: A Deep Learning-Empowered Hands-Free Analysis of Brain Tumors from DCE-MRI *Jakub Nalepa, Michal Marcinkiewicz, Pablo Ribalta Lorenzo, Barbara Bobek-Billewicz, Pawel Wawrzyniak, Maksym Walczak, Wojciech Dudzik, Michal Kawulok, Grzegorz Mrukwa, Izabela Burda, Pawel Ulrych, Mateusz Knyc, Stephen J. Brown, Michael P. Hayball (Silesian University of Technology, Future Processing)*

State-of-the-art solver for the Capacitated Vehicle Routing Problem with Time Windows based on recombination operators *Piotr Beling, Piotr Cybula, Andrzej Jaszkiewicz, Marek Rogalski, Piotr Sielski (University of Lodz, Emapa, Poznan University of Technology)*

Machine learning approach to cross-device identification of users *Mateusz Jukiewicz, Bartosz Bogacki, Krzysztof Dembczynski (Roq.ad GmbH, Poznan University of Technology)*

Containers for HPC - experience on Intel® Xeon Phi™ *Piotr Umiński (Intel)*

session chair: Paweł Śniatała

Modern challenges for infrastructure attestation through hostile channels in distributed systems *Karolina Rogowska, Marcin Stępnicki, Wojciech Dembinski, Marek Zmuda (Intel)*

A blockchain-based digital micro certicates for the educational domain *Anna Kobusińska, Paweł Boiński, Michał Boroń, Paweł Kobyliński, Rafał Skowroński (Poznan University of Technology)*

Persistent Memory vs Applications *Maciej Maciejewski, Jakub Schmiegel (Intel)*

INVITED TALK: The Promise of Applied Machine Learning. Expectations and Reality *Krzysztof Krawiec, Mikołaj Morzy (Poznan University of Technology)*

Detailed program of IP3

Tuesday, 18 September, 2018

Tuesday, 09:30 – 11:00, IP3 Session 1: Frameworks Overview

session chair: Moira de Roche

e-CF overview *Mary Cleary, Irish Computer Society*

SFIA overview *Ian Seward (SFIA)*

eCF in an Academic Environment *Marek Bolanowski (PTI-IT Competence Council/WEiI PRz)*

Cyber-Security Framework overview *Anthony Wong (ACS)*

How Frameworks Support Skills Development *Moira de Roche (IP3)*

Tuesday, 11:00 – 11:30, Coffee break

Friday, 21 Septenber, 2018

Friday, 9:30 – 11:00, IP3 Session 2: Frameworks Implementation

session chair: Moira de Roche

e-CF Practical Application *Bramjan Mulder (KNVI)*

Using SFIA for membership grading *Tony Parry (IITPSA)*

How the e-CF can be used in the system of education for IT professionals *Bogusław Dębski (PTI-IT Competence Council/Ministry of Digital Affairs)*

Cyber-Security Specialism Framework In Action *Anthony Wong (ACS)*

Customising and Mapping Frameworks *Liesbeth Ruoff (KNVI)*

Using frameworks for accreditation – the Trust aspect *Adrian Schofield (IP3)*

Let's get it done – Implementing Frameworks *Workshop (All speakers & Audience)*

Friday, 11:00 – 11:30, Coffee break

Detailed program of PhD SRC

Tuesday, 18 September, 2018

Tuesday, 14:30 – 16:00: PhD SRC Session 1

session chair: Paweł T. Wojciechowski

On the correctness criteria for crash-prone highly-available distributed systems *Maciej Kokociński*

Augmented Reality and Smart Object Based Laboratory Training System *Anmol Srivastava*

(Re)active Business Intelligence through Incremental View Maintenance *Muhammad Idris*

Structural offload in IoT by Artificial Neural Networks *Julius Skirelis*

Tuesday, 16:00 – 16:30, Coffee break

Tuesday, 16:30 – 18:00: PhD SRC Session 2

session chair: Paweł T. Wojciechowski

Automatic histopathological breast cancer images classification using convolutional neural networks (CNN) *Mona Sabrine Mayouf*

Supporting template-based elicitation of non-functional requirements *Sylwia Kopczyńska*

AI for the legal domain: an explainability challenge *Alexandre Quemy*

Modeling of Nerve Impulse Propagation Using Third Generation Neural Networks *Damian Huderek*

Oxford-style Debate

Oxford-style Debate: Should Artificial Intelligence be more regulated?
moderator: Leon Strous, past President of IFIP

Many discussions are taking place at the moment about Artificial Intelligence (AI), about ways AI may benefit mankind and about risks of AI. Autonomous cars, automated trust assignment to individuals, and autonomous weapons are only a few examples how AI can change our life. Some people warn us that AI can be even more dangerous than nuclear power. On the other hand it seems impossible and undesirable to stop development of AI and its applications. Thus, the question arises what should be the role of governments. Should AI be more regulated with respect to research and/or its usage?

This important issue will be discussed in a form of Oxford debate. First, the audience will present their initial opinion by voting on the debate motion with "for", "against" or "undecided" votes. Then four panel members will address the debate question, two in favour of the statement and two against, in short speeches (up to 7 minutes each). Next the audience will ask questions to the panel members and express their opinions. Finally, the audience will vote again to see whether the discussion has changed their mind.

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