DESRIST 2023
18th International Conference on Design Science Research in Information Systems and Technology
Future Africa | University of Pretoria | South Africa
31 May - 2 June 2023

Call for Papers EXTENDED DEADLINE – DESRIST 2023
Pretoria, South Africa
31 May 2023 – 2 June 2023

https://desrist2023.org/
desrist.2023@gmail.com

Conference Theme – Design Science Research for a New Society: Society 5.0

Humanity has experienced unprecedented technological developments during the past few decades. Few can argue that the lives we live and the societies we are part of are undergoing vast, often unexpected adjustments and transformation. More voices are requesting a rethink of the relationship we – as humans – have with technology in this new world. Society 5.0 is the term that has emerged to describe the new society that is the result of the high degree of merging between cyberspace and physical space, where we will be able to balance economic advancement with the resolution of social problems by providing goods and services that address needs regardless of locale, age, gender or language. The theme of the 18th International Conference on Design Science Research in Information Systems and Technology (DESRIST 2023) therefore challenges the DSR community to think about research from the perspective of Society 5.0.

Venue

DESRIST 2023 will be located on the Flexible Futures Conference Centre of the University of Pretoria, South Africa. The venue is located on the University's tranquil Innovation Africa Campus. The facility forms part of the Future Africa research institute, a pan-African platform that makes fundamentally new approaches to research and innovation possible that span disciplinary fields and geo-political boundaries.

Key Dates

- Deadline for full paper and research-in-progress **abstracts**: 16 January 2023
- Deadline for full paper and research-in-progress (RIP) **paper submissions extended**: ~~23~~ **30 January 2023**
- Paper reviews due: 27 February 2023
- Notification of paper acceptances: 15 March 2023
- Deadline for Prototype, Panel, Tutorial, and Workshop submissions: 22 March 2023
- Camera-ready paper submissions: 27 March 2023
- Notification of Prototype, Panel, Tutorial, and Workshop acceptances: 18 April 2023
- Conference dates: 31 May to 2 June 2023

Submission Types

We look forward to receiving your full papers, RIP papers, prototype submissions, and panel/workshop/tutorial proposals. Proposals for half-day tutorials and workshops are encouraged. We also invite doctoral student researchers who are interested to attend the doctoral consortium to submit a summary of their research. Our doctoral consortium brings together early-stage and experienced design science researchers and provides a platform for constructive exchange. You will appreciate the transformational mentorship experience as well as the exciting networking opportunities.

Editorial Process

All paper submissions will go through a double-blind review process conducted by an international review panel. Your paper will be assessed anonymously by at least two reviewers and managed by the track chairs and program committee. Your prototype submissions will be handled by the prototype chairs. Your panel, tutorial, and workshop proposals will be reviewed by the respective chairs and the program committee.

Conference Proceedings

The *accepted full research papers* will be included in a volume of Springer Lecture Notes in Computer Science (LNCS) as DESRIST 2023 Proceedings. All other types of submissions will be published in some form on the DESRIST 2023 Website.

Conference Tracks

Submissions will designate a preferred research track. Track chairs will manage the review process to ensure a minimum of three substantive peer reviews. The conference tracks are:

Theme Track – Design-oriented Research for Society 5.0
Co-Chairs:
Knut Hinkelmann – FHNW University of Applied Sciences and Arts Northwestern Switzerland and University of Pretoria (**knut.hinkelmann@fhnw.ch**)
Felix Härer - University of Fribourg (**felix.haerer@unifr.ch**)

Society 5.0 is about the development of the society of the future as a human-centered society that balances economic advancement with the resolution of social problems by integrating digital space and physical space. The aim of information systems research for Society 5.0 is to design solutions that contribute to creating a society where social challenges are resolved by incorporating the innovations of the fourth industrial revolution (e.g. Internet of Things, Big Data, Artificial intelligence, and the sharing economy) into industry and social life. Technological advancements and trends for digital transformation should address global problems and challenges such as climate change, migration, resource consumption and the achievement of Sustainable Development Goals (SDGs) like poverty and education. Topics for this include designing artifacts in areas like but not limited to: Cyber-physical systems, Internet of things, Digitalization of products and processes, Digital transformation, Democratization in technological development, Accessibility of technologies, Collaborative Online International Learning, Cross-cultural teaching and learning, Innovation development, Big data analysis, Online collaboration, E-Health, Personalized medicine, Cyber security and resilience, Data privacy, Mobility, Human-system interaction, Social robots, Automating knowledge work, Collaboration between human and AI, Conversational AI, Resilient socio-technical systems, Fintech, Cross-cultural communication and trust, Digital supply chain

Design of Systems Using Emerging Technologies Track
Co-Chairs:
Kaushik Dutta – University of South Florida (**duttak@usf.edu**)
Carson Woo – University of British Columbia (**carson.woo@sauder.ubc.ca**)

In today's rapidly changing, interconnected global economy, concepts such as *FinTech* and *blockchain* have become commonplace from the newsroom to the boardroom. Recently, disruptions from the global pandemic have worked to accelerate change and increase demand for new knowledge, leadership, innovation, and solutions to emerging complex challenges in the public and private sectors. As a result, rapidly evolving, technology-driven research domains and industry sectors such as those involving FinTech and blockchain systems are having broad based transformational impacts on a range of diverse market spaces including (although not limited to) banking, finance, financial services, healthcare, insurance, manufacturing, supply chain, transport, government, legal, energy, cyber security, and utilities, among others. A general shortlist of broad topical areas for consideration might include, and are not limited to, the following:
- DeFi and Insurtech platforms and technology
- FinTech AI and Machine Learning
- Algorithmic trading
- Payment and transaction processes via blockchain
- Robo advising and financial services
- Blockchain systems and global supply chain networks
- Blockchain in next generation mobile communication networks

- Blockchain and smart contracts in financial services
- Inter and intra sector smart contracts
- Blockchain in applications of smart cities, IoT, and big data
- Political, cultural, and socioeconomic implications of blockchain and smart contract technologies
- Blockchain in public procurement

Human-Centered Artificial Intelligence (HCAI) Track
Co-Chairs:
Pierre-Majorique Leger – HEC Montreal (**pierre-majorique.leger@hec.ca**)
Armel Quentin Tchanou - Université de Sherbrooke (**armel.quentin.tchanou@usherbrooke.ca**)
Mahdi Mirhoseini – Concordia University (**mahdi.mirhoseini@concordia.ca)**

Intelligent systems leveraging Artificial Intelligence (AI) technologies are ubiquitous in our daily life. To exploit the full potential of intelligent systems, it is important to follow a human-centered AI perspective. The interdisciplinary research area of Human-Computer Interaction (HCI) in general is concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them. This track specifically aims to provide a platform for discussing the latest advances in design science research at the intersection of intelligent systems and HCI.

Healthcare Systems and Quality of Life Track
Co-Chairs:
Reima Suomi – University of Turku (**reima.suomi@utu.fi**)
Monica Chiarini Tremblay – William and Mary University (**monica.tremblay@mason.wm.edu**)
Debra VanderMeer – Florida International University (**vanderd@fiu.edu**)

Healthcare is infected with a multitude of wicked problems; with the current Covid-19 as a concrete contemporary example. Solutions to these problems need multidisciplinary work: professionals in the field must work together with regulators, and suppliers of technical solutions have a key role. The most important stakeholder and actor is the patient. In healthcare organizational settings, there are often complicated relationships between clinical, IT, and administrative personnel. These all are further divided into powerful subgroups. A feasible solution achieved in one environment seldom works in others, and organizational boundaries are seldom respected. In such scenarios, wide-reaching integrative solutions are required. Our track looks for research and theory-based solutions to problems related to health and social well-being. Contributions on research-based solutions to health and social problems on individual, group, organization, population, country, and world level are all welcome. Ideally, proposed solutions should be generalizable across multiple environments, with documented positive impact.

Innovation and Entrepreneurship Track
Co-Chairs:
Christoph Seckler – ESCP Berlin (**cseckler@escp.eu)**
Georges Romme - Eindhoven University of Technology (**a.g.l.romme@tue.nl)**

The promise of design science for innovation and entrepreneurship scholars is that they can tackle various challenges related to Society 5.0 with scientific rigor. Society 5.0 describes a society that involves a high degree of merging cyberspace and physical space. The DESRIST 2023 track 'Innovation and Entrepreneurship' seeks high-quality design science submissions on innovation management and entrepreneurship topics. The track is open for empirical as well as conceptual work which makes a strong contribution to the body of design knowledge on entrepreneurship and innovation management. The aim is to provide significant practical value. Suitable topics are innovative and entrepreneurial ways of tackling relevant how-to questions such as: how to seize entrepreneurial opportunities arising from the merging of cyberspace and physical space; how to integrate humans and machines to make a major contribution to the Sustainable Development Goals; and how to effectively design and develop innovation ecosystems at the interface of the digital and physical world? We also welcome methodological contributions that provide guidance on how to conduct design science research in the innovation and entrepreneurship field. Please reach out to us if you have any questions related to your submission.

Emerging DSR Methods and Processes Track

Co-Chairs:
Hanlie Smuts – University of Pretoria (**hanlie.smuts@up.ac.za**)
John Venable – Curtin University (**j.venable@curtin.edu.au**)

Design Science Research (DSR) Methods and Processes (as well as Tools and Techniques) guide DSR researchers in planning and conducting DSR. The Emerging DSR Methods and Processes track seeks contributions that stimulate scholars to critically reflect on our scholarship, paradigms, methods, and fundamental assumptions in DSR. We seek both conceptual and empirical studies that advance our understanding and facilitate improvement of DSR methods and processes. The track seeks conceptual studies of foundations of DSR including paradigms, ontologies, epistemologies, ethics, the nature of artefacts and human purposes, etc., where such conceptualizations advance our knowledge about design science methods and practice. We also welcome empirical studies that contribute evidence concerning the strengths, weaknesses, requirements, efficacy, effectiveness, efficiency, and/or ethicality of existing and emerging DSR methods and processes. We particularly welcome conceptual and empirical research on philosophy and DSR methods, processes, tools, and techniques that addresses the theme of the conference - Design Science Research for a New Society: Society 5.0. For example, such research may seek to reconceptualise the relationship between cyberspace and physical reality and purposeful artefacts that operate in such a changing context. Research for this track might examine the relationship between economic advancement and emancipatory and other social well-being goals, and how new DSR methods and processes may support balancing those goals. Empirical studies might illustrate how and why existing methods fail to address the conference theme or evaluate how well new methods help to achieve the sustainability and social goals in Society 5.0

Education and DSR Track

Co-Chairs:
Asif Gill – University of Technology, Sydney (**asif.gill@uts.edu.au**)
Jean-Paul van Belle, University of Cape Town (**jean-paul.vanbelle@uct.ac.za**)

The Education and DSR (EDSR) track is a premier forum for research, applications and experience reports on challenges and best practices in (a) teaching and learning DSR as well as (b) using DSR for teaching and learning. As curricula develop slowly, DSR is often underrepresented in curricula and courses on research design and methods, and we invite contributions that offer guidance on what and how to teach in a DSR course in a way that enables new and early career academics to conduct DSR according to high standards. DSR artifacts are useful in solving many challenges within the educational domain. The COVID-19 pandemic disrupted education systems globally. Yet new and promising artifacts have been designed and evaluated that enable remote education. We particularly invite contributions in this area, but also in other educational fields. With this first DESRIST track on educational issues, we want to establish teaching and learning issues as a permanent concern in the DSR community. We welcome all submissions that contribute to this goal, for example by:
-   presenting successful syllabi, teaching materials and experience reports from conducting DSR courses at all advanced educational levels,
-   analyzing specific DSR challenges and solutions in the context of research education,
-   identifying potentials and limitations of mutual learning between DSR education in research and practice,
-   reporting foundational research on DSR competencies and skills,
-   developing methods of teaching DSR competencies and skills,
-   evaluating teaching and assessment methods in DSR education,
-   reporting empirical studies describing DSR education in different contexts,
-   reporting pedagogical approaches for DSR education in distributed and remote digital environment,
-   analyzing educational technologies for DSR education,
-   describing and evaluating innovative artifacts that enabled education during the pandemic.

Human Safety and Cybersecurity Track

Co-Chairs:
Mala Kaul – University of Nevada, Reno (**mkaul@unr.edu)**
Paolo Spagnoletti - Luiss University (**pspagnoletti@luiss.it**)
H.R. Rao - University of Texas at San Antonio (**hr.rao@utsa.edu)**

 Rapid advancements in connectedness, computation, and accessibility of cyberinfrastructures have introduced cybersecurity as a grand challenge in modern societies. Securing cyber infrastructure against nation-state or individual adversaries is a multi-disciplinary research area spanning computational design science, social, and behavioral sciences. Design science scholars are uniquely positioned to contribute to this area of research by applying (design) knowledge to examine organizational, social, and

behavioral cybersecurity challenges, as well as developing knowledge by designing and evaluating novel artifacts to address practical human safety and cybersecurity concerns.

 This track invites papers that expand the design knowledge base at the intersection of information systems and security. To this end, we welcome a broad variety of papers that develop novel artifacts, methodological knowledge, and/or theoretical contributions. The topics of interest include, but are not limited to:
- Cyber threat hunting and risk mitigation
- AI-enabled cybersecurity
- Adversarial attacks against cybersecurity infrastructure
- Automatic Vulnerability detection and remediation
- Security of social media
- Malware and Phishing detection, analysis, and prevention
- Botnet and intrusion detection
- Human-centered design to address cybersecurity
- Unintended consequences of systems design on human safety and cybersecurity
- Designing IoT Privacy and Security
- Blockchain and security
- NeuroIS tools and methods for behavioral information security and design secure systems
- Design theorizing for human and cybersecurity

Co-Design and Collective Creativity for Addressing Grand Challenges Track
Co-Chairs:
Leona Chandra Kruse – University of Liechtenstein (**Leona.chandra@uni.li**)
Pascal Le Masson – Mines Tech Paris (**pascal.le_masson@mines-paristech.fr)**

Addressing grand challenges lies at the heart of contemporary design initiatives. Such initiatives rely on effective collaboration - on co-design and collective creativity. The increasing sophistication and interconnectivity of digital systems creates vast possibilities for co-designers, provided they have the necessary tools, structures, and knowledge. This means co-designers must develop collaborative processes and systems that allow them to harness insights from a range of actors, such as technology specialists, artists, managers, and of course, the intended users. How can one promote both rigor and collective creativity at the same time? Moreover, co-designers must capture and harness the different outputs of their collective creativity. When presenting and evaluating design initiatives, we tend to focus only on the final outputs, such as prototypical implementations, deployed artifacts, and design knowledge. However, intermediary outputs and unfinished solutions play an important role in fostering collective creativity and shaping the final outputs. How can one avoid losing these invaluable assets? This track invites out-of-the-box research on co-designers and their approaches to foster collective creativity in order to address grand challenges. It invites participants to link empirical works with theoretical approaches. Topics of interest include, but are not limited to:
- New rigorous approaches to support collective creativity in design processes
- Co-design in addressing grand challenges
- Different outcomes and meanings of co-design
- Understanding the roles of unfinished design solutions
- Cognitive and psychological issues in collaborative design
- Designers' heterogeneity and collective creativity
- Tensions and conflicts in collaborative design
- The management of collaborative design
- Knowledge generation and reuse in co-design
- Design theory for co-design
- Designing for adaptability and appropriation (reuse, redesign)

Sustainability and Responsible Design Track (Environmental Issues, Human Values and Ethical Design)

Co-Chairs:

Nigel Melville – University of Michigan (**npmelv@umich.edu**)

Nicolas Prat – ESSEC Business School (**prat@essec.edu**)

Johann Kranz - LMU Munich School of Management (**kranz@lmu.de**)

The Sustainability and Responsible Design Track favors practical impact potential aligned with environmental sustainability challenges (e.g., UN SDGs) and social and responsible design grounded in pertinent concepts and theories. Information systems design science research has a key role to play in addressing these issues by attending to both the direct (e.g., in terms of research consumption and emissions through their production, use, and disposal) and indirect (e.g., in terms of more sustainable business processes) impacts of designing IT artifacts. Moreover, in the age of AI, responsible design is coming to the forefront. We embrace research that can provide early insights via a range of design science research approaches and outcomes, including prototypes, frameworks, design principles, and full-blown design theories. Moreover, we welcome the full spectrum of evaluation methods, including small-scale practical evaluation, demonstration, simulation, human-based evaluation, machine-based evaluation, and new evaluation methods going beyond immediate utility evaluation to consider the sustainable impact of artifacts. Topics of interest include, but are not limited to:

- Design artifacts for environmental, social, and economic sustainability (e.g., climate change)
- Design artifacts for the circular economy (e.g., blockchain)
- Sustainability by design
- Evaluating the sustainability and long-term impact of design artifacts
- Responsibility by design (including fairness, inclusiveness, transparency, explainability, accountability, security, safety, and robustness)
- Responsible and sustainable artificial intelligence
- Design artifacts and values.

DSR and Information and Communication Technology for Development (ICT4D) Track

Co-Chairs:

Maung Sein -- University of Southeastern Norway (**Maung.K.Sein@usn.no**)

Judy Van Biljon --University of South Africa (**vbiljja@unisa.ac.za)**

This track welcomes Design Science Research (DSR) papers in the area of Information and Communication Technology for Development (ICT4D). The ICT4D field examines how access to relevant information and the provision of critical services using ICT impacts people's living conditions while simultaneously considering inclusion and sustainability. Bringing together sustainable development and inclusivity, while respecting the distinctive lifestyles of non-traditional users of technology remain a challenging endeavor in the time of datafication, digitalization and virtualization. ICT4D can be considered a subset of Society 5.0 with resource constraints added to the many related complexities. Design science scholars are uniquely positioned to contribute with context informed, evidence based, solution-oriented studies required to develop useful theorizations in ICT4D. Such solution-oriented theorizations represent a meaningful contribution to ICT4D that has a great potential to benefit Society 5.0. We invite submissions that explicitly or inherently focus on the design of systems and artifacts aimed at advancing ICT4D. The topics of interest include, but are not limited to the following:

- Accessibility to ICT
- Conceptual frameworks and discourses on designing for ICT4D
- Human-Computer Interaction and ICT4D (HCI4D)
- ICT4D applications
- Methodological approaches to designing for ICT4D
- Methodological approaches towards the evaluation of ICT4D artifacts
- Social innovations and ICT4D
- Technological innovation and ICT4D
- Stakeholder engagement in ICT4D
- Sustainability in ICT4D initiatives.

Conference Committees

Conference Chairs: **Alta van der Merwe – University of Pretoria**

Robert Winter – University of St Gallen

Program Chairs: Aurona Gerber – University of Pretoria
Richard Baskerville – Georgia State University
Alexander Mädche - Karlsruhe Institute of Technology
Lisa Seymour – University of Cape Town
Riana Steyn – University of Pretoria