# MONDAY 16TH

*Note that the times are in Central European Summer Time (CEST)*

Search the program

*Clear*

## 09.00 - 12.00

Online

### Workshop Session 1

Collaboratively Pursuing a Research Roadmap for Sustainable Design Tools
***Sustainable Design SIG***
Jeremy Faludi, Sze Yin Kwok, Michael Saidani, Sophie Hallstedt, Daniela Pigosso, Yuri Borgianni
Join

Do Smart PSS make the Voice-of-the-Customer louder and clearer?
***Design of Product-Service Systems SIG***
Marco Bertoni, Tobias Larsson
Join

Future of Design Creativity
***Design Creativity SIG***
Akane Matsumae, Srinivasan Venkataraman, Andrew Wodehouse
Join

Decision-making & Interaction Data: improving the product design process
***Decision Making SIG***
Camille Jean, Julie Le Cardinal
Join

Industry Perspectives on Collaborative Design for a Post-Pandemic World
***Collaborative Design SIG***
Avril Thomson, Ian Whitfield, Ross Brisco
Join

Data Informed Design: Challenges and Perspectives
Kostas Stylidis, Arnaud Goy, Alina Braun, Bastian Quattelbaum, Adam Palmquist, Ole Goethe
Join

Health Systems Design Hackathon
***Healthcare SIG***
Anja Maier, Maaike Kleinsmann, John Clarkson
Join

When is a design method valid?
***Human Behaviour in Design SIG***
Selin Üreten
Join

Join

## 12.00 - 13.00

Break

## 13.00 - 13.45

Online

### Publishing Reference Handbooks

Chair: Anja Maier

Join

## 13.45 - 14.30

Break

## 14.30 - 15.30

On-site & Online

### Opening of ICED

Ola Isaksson, ICED21 Conference Chair

Join

## 15.30 - 16.15

On-site

Welcome Reception

15.30 - 16.15

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Welcome Reception (Online Mingle Event)

Join

## 16.15 - 16.30

Break

## 16.30 - 19.30

Online

### Workshop Session 2

Collaboratively Pursuing a Research Roadmap for Sustainable Design Tools
***Sustainable Design SIG***
Jeremy Faludi, Sze Yin Kwok, Steven Hoffenson, Michael Saidani, Sophie Hallstedt, Daniela Pigosso, Yuri Borgianni
Join

Sketching concepts for personal & shared understanding
***Design Sketching SIG***
Amos Scully
Verena Paepcke-Hjeltness
Join

Are we aware of the societal impact of Additive Manufacturing technologies?
***Design for Additive Manufacturing SIG***
Tino Stankovic, Nicholas Meisel, Serena Graziosi
Join

Design Neurocognition: Challenges, Purposes and Approaches
***Cognitive Design Science SIG***
John Gero, Laura Hay
Join

Data Informed Design: Challenges and Perspectives
Kostas Stylidis, Arnaud Goy, Alina Braun, Bastian Quattelbaum, Adam Palmquist, Ole Goethe
Join

Africa-Design: A Network Hub for Research, Education, and Practice in Global Sustainable Development
***Collaborative Design SIG, Design Education SIG, Design Practice SIG, Health Systems Design SIG, Product Service Systems SIG, Sustainable Design SIG***
Susanne Nilsson, Margareta Norell Bergendahl, Panos Papalambros, Bernard Shibwabo
Join

Design Research for achieving product robustness
***Robust Design SIG***
Tobias Eifler, Benjamin Schleich
Join

Design Theory, Generativity In Artificial Systems, Generativity In Bio-Ecosystems
***Design Theory SIG***
Pascal Le Masson, Eswaran Subrahmanian
Join

An interactive experiment to investigate a fundamental concepts that define collaborative design
***Collaborative Design SIG***
Ian Whitfield, Avril Thomson, Ross Brisco
Join

Benchmarking tool for process modelling approaches
***Design Process SIG***
Kilian Gericke, Claudia Eckert
Join

Design of and with Next Generation Machine Elements
***Design Practice SIG, Robust Design SIG, Design Theory SIG***
Eckhard Kirchner, Sven Matthiesen
Join

Addressing Practical Challenges Implementing Industry 4.0
***Design Practice SIG***
Ryan Ruvald, Giulia Marcocchia
Join

Join

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Search the programme

Clear

**13.30 - 13.40** | Decide & Select

## Keynote 1: Leading the Energy Transition with our Customers in Focus

Johan Gardell, Chalmers Energy Group

Zoom

**13.40 - 14.15**

## Break

**14.15 - 15.45**

## Presentation Block A, Parallel sessions A1 - A9

Online

### A1 - 3D-3D Printing

Tom Bergkvist, Tech Venture Capital, Stockholm

Additive Manufacturing: Enabling Digital Artisans (AM)
Fearing, Pontus Wahlström, Berlin
Chi-Lin Lucas-Lucas
Watch video

Data Analysis as the Basis for Improved Design for Additive Manufacturing (DfAM) (AM)
Hamzaoui, Ezeddine, Karlsruhe, Fra
Chi-Lin Lucas-Lucas
Watch video

Derivation of Criteria for Assessing Systems - Principles underlined for Additive Manufacturing (PUA)
Travis, Gregory-John, Varella, Eirini
Chi-Lin Lucas-Lucas
Watch video

Knowledge-based Design Support for Generative Overbuilding in Powder Bed Fusion Additive Manufacturing (OBG)
Mesa, Mariachiadelina Menzel, Mario, Hamburg, Germany
Frederic Quarantelli, Dresden
Chi-Lin Lucas-Lucas
Watch video

Surface Roughness Prediction Model for Laser Powder Bed Fusion Additive Manufacturing - Influence of Overhang (SRL)
Charlotte, Ekechukwu Ezenwa, Christy, TEKNA, Paris
Chi-Lin Lucas-Lucas
Watch video

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Online

### A2 - Agile Design and Manufacturing Practices

Jean-Francois Bonaque, Dassault AM - University Gothenburg

A Review of Design Research in Engineering Productivity in the Architecture, Engineering and Construction (AEC) Industry (EEC)
Wang, Yuanxia, Yu-Ping Jung, Sam Chalmers, Gothenburg
Chi-Lin Lucas-Lucas
Watch video

Work-Domain Design Considerations for Aerospace Companies Including Work Domain Analysis (WDA)
Sabbouh, Ola, Kjellström, Tomas, Kristiansson, Jakob, Rosenkvist, Maxime, Linköping, Sweden, Andersson, Hakan
Chi-Lin Lucas-Lucas
Watch video

Organisations Design in Mission Changing an Organisation for Agility (OMA)
Grafström-Gustafsson, Cecilia, Stefan, Wirta, Stuffan, Sun
Chi-Lin Lucas-Lucas
Watch video

Towards Agile Product Development: An Empirical Study on an e-Bike Drive (DAD)
Zurlo, Francesco, Rizzo, Francesca, Lotti, Gianluca, Siena
Chi-Lin Lucas-Lucas
Watch video

Where Worlds Collide - Exploring Knowledge Issues Impeding Adoption of Agile For Hardware Products
Frykman, Matthias, Gothenburg, Lothar
Chi-Lin Lucas-Lucas
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### A3 - Big Data

Benjamin Schleich, Friedrich-Alexander-Universität Erlangen-Nürnberg

An Automated Method to Conduct Ergonomic Performance Analysis of Human Operators in Online Reviews - An Extension with a Case Study (AOR)
Ina Engelberg Ole, Germany
Chi-Lin Lucas-Lucas
Watch video

Data-Driven Design Challenges in the Early Stages of the Product Development Process (DDD)
Brock, Tristan, Jean, Carolin, Karlsruhe, Germany, Sven, Matthias, Karlsruhe, Germany, Julia, Marlowski, Sandra
Chi-Lin Lucas-Lucas
Watch video

Semantic Networks for Engineering Design in Survey (SN)
Han, Ji, Zhou, Dongni, Cheng, Lian, Jiang, Yuan
Chi-Lin Lucas-Lucas
Watch video

The Impact of Data on the Risk of Designers and their Process (MR)
Cassandra Ann Thomas, Pratyushna Gunyala, Akhila Bangalore, Jeffry
Chi-Lin Lucas-Lucas
Watch video

Understanding Usage Data-Driven Product Planning: A Systematic Literature Review (UUD)
Khan, Marcus Mandelbaum, Sigrid, Andersen, Christian, Rundmann, Roman
Chi-Lin Lucas-Lucas
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Online

### A4 - Design Methods - Applications

Joshua Summers, Clemson University

Analysis of Experienced Sports Equipment Designers' Approaches to Use Design Spaces to Paradigmatic Alpha Ewelgasem Felix, Ghadri, Hadrien, Wallace, Kevin Brandt Sebastian, Ulrich Karl T., Sabine, Matthias
Chi-Lin Lucas-Lucas
Watch video

Design of Experiment for Sports Equipment Development Considering Hin Design Space Size Paradigmatic Alpha Ewelgasem Felix, Ghadri, Hadrien, Wallace, Kevin Brandt Sebastian, Ulrich Karl T., Sabine, Matthias
Chi-Lin Lucas-Lucas
Watch video

Diagnosis of Development Organisations Using Retrogressive Factors Technical System Using the Radical Innovation Design Methodology (RIDM)
Sally, Hassouna, Sonny, Bernard, Vera, Yann Claude, Fabrice, Nicolas, Nicolas, Nicolas, Nicolas, Nicolas, Nicolas, Nicolas, Antony
Chi-Lin Lucas-Lucas
Watch video

Geometry Application Evolution - From Computer-Aided Applications over Time Decades (GEA)
Ryan, Kevin, Clemson, Nathan
Chi-Lin Lucas-Lucas
Watch video

New Design for Installation (DfI) Considerations for Large Scale and Long Life Cycle Products Application to Offshore Wind (NDI)
Nicolaus, Rene, Karlsruhe, Germ, Hermann, Adrian, Cabello, Maria Jesús, Campos, Jesús, Sanchez, Jesús, Sanchez
Chi-Lin Lucas-Lucas
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### A5 - Design Education

Alexander Koltsov, University of Stuttgart

Systems and Self-Determination Theory in Primary School Classrooms to Encourage Social Interaction with the Intent of Learning (SSD)
Lantzos, Sarah, Bernard, Lisa, Karlsruhe
Chi-Lin Lucas-Lucas
Watch video

Initial Characterisation of Design Education in Sweden (ICDS)
Kristiansson, Sofia, Linköping, Sweden, Lindberg, Tobias, Sweden, Sofia, Sweden, Gustavsson, Sebastian
Chi-Lin Lucas-Lucas
Watch video

Student Participation in Design Education - Collection of Reflections to Improve Your Study Quality (CRS)
Ernst, Lisa, Karlsruhe, Germany, Bernard, Lisa, Karlsruhe, Germany
Chi-Lin Lucas-Lucas
Watch video

Sustainability in Engineering Education - Description and Analysis of Sustainability Learning Courses (SSE)
Kristiansson, Sofia, Linköping, Sweden, Lindberg, Tobias, Sweden, Sofia, Sweden, Gustavsson, Sebastian
Chi-Lin Lucas-Lucas
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Use of Information and Communication Technology Tools in Design Education - Design Student Teams (UIC)
Hernan, Nicolas, Valparaiso, Chile, Buenos, Aires
Chi-Lin Lucas-Lucas
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### A6 - Design Cognition

Lian Ding, University of Strathclyde

An Experimental Study: Textual Information Driven Spatial Representations for Representations for Cost Interface Design of 3D Models (TIDS)
Ji, Kunxian
Chi-Lin Lucas-Lucas
Watch video

Designing in Complexity: How Solution Complexities Influence Design Decisions (DIC)
Zhang, Nianlin, Wu, Jin
Chi-Lin Lucas-Lucas
Watch video

Detecting Bad Design and Bad Design Practices (TBD)
Bellucci, Francesco, Rizzo, Francesca, Gualtiero, D'Onofrio, Filippo, Bernardo, Krishna
Chi-Lin Lucas-Lucas
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Interbased Cognition Transformation in Engineering Design Teaching (IBS)
Yanmei, Zhang, Xiaoke, Sweden
Chi-Lin Lucas-Lucas
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### A7 - Collaborative Design

Chris Snider, University of Bristol

A Fuzzy Front-End Collaborative Design Framework (FFCD)
Ramos Ferreira, Nuno Miguel, Ishigami Sustabilley, Hernan Ernesto, Kagan Willy, Tomiyama Tetsuo, Pey Lauro Kienitz, Emmanuelle, Wallace
Chi-Lin Lucas-Lucas
Watch video

An Analytical Framework for Collaborative Design Effectiveness (FAC)
Martins, Gomes, Deslandes, Alvaro, Sao, Jorge
Chi-Lin Lucas-Lucas
Watch video

Communication in AI Supported Design Teams - Lessons Learned from Design Sprints (CDS)
Gyory, Jathan T., Cong, Shuaiqing, Cagan, Jonathan, Carnegie Mellon, Pittsburgh
Chi-Lin Lucas-Lucas
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### A8 - Systems Engineering Implementation

Bernd Kaiser, LTU, Luleå University of Technology

Bridging Systems Design in the Mechanical Practice: Old Cases of Systems Design Framework (SDF)
Jacobs, Marcel, JP Van Aal, Arnhem
Chi-Lin Lucas-Lucas
Watch video

Integration of Blockchain Technologies in Cyber Physical Systems Engineering and Implementation Based on Industrial Context (TIB)
Ali, Sajid
Chi-Lin Lucas-Lucas
Watch video

Interdisciplinary System Architecture in Agile Modular Development in Industrial Manufacturing Enterprises Model using the Example of a Mobile Robot in Manufacturing (IAS)
Brik, Charaniya, Duffy, Maria, Alvaro, Alfredo Bruno, Nieto, Nieves, Zabala Gabriel
Chi-Lin Lucas-Lucas
Watch video

Need for Action for a Holistic Introduction of Systems Engineering in Mechanical and Plant Engineering (SIM)
Wilke, Sebastian, Hamburg, Stefan, Lydia, Gumbinnen, Roman
Chi-Lin Lucas-Lucas
Watch video

Shaping Manifest Interdisciplinary and Implementation of Systems Engineering in Industrial Practice (MIS)
Kaiser, Bernd, Luleå, Sweden
Chi-Lin Lucas-Lucas
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### A9 - Design Creativity

Andrew Rhodehouse, University of Strathclyde

A Study on Students Assessing Four Creativity Assessment Methods in Engineering Design (SAC)
Yin, Chen, Tao, Ji, Zhang, Zhu, Zhu, Haiyu, Chida, Peter
Chi-Lin Lucas-Lucas
Watch video

Data-driven Creativity: Computational Problem exploring in Engineering Design (DDC)
Chaves, Frederico, Johannesburgo, Jaime, Rio, Jo
Chi-Lin Lucas-Lucas
Watch video

How the Co-Creation Process Affects Concept Formation (CPC)
Bianchi, Giacomo, Rizzo, Francesca, Fruzzetti, Elisabetta, Zanardo, Filippo, Valeri
Chi-Lin Lucas-Lucas
Watch video

Peer Designers as Strong Influencers on the Creative Process of Design (PSD)
Long, Summer S., Pachowski, Erika, Cagan, Jonathan, Carnegie Mellon, Pittsburgh
Chi-Lin Lucas-Lucas
Watch video

The Influence of Design Brief Information on Creativity Between Novice and Advanced Students (CDB)
Kitchen, Nathan, Carnegie Mellon, Pittsburgh
Ying, Amelia, Kang, Jennifer, Kang, Jennifer
Chi-Lin Lucas-Lucas
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**15.15 - 15.30**

## Break

**15.30 - 14.30** | Decide & Select

## Keynote 2: Becoming Completely Experts

Anna Sandberg, Volvo, Lund

Zoom

**14.45 - 15.30**

## Presentation Block B, Parallel sessions B1 - B9

On site & Online

### B1 - Additive Manufacture

Western Pomeranian University of Technology, Szczecin

Additive Manufacturing Design Rules for Laser Consume Review (ADR)
Jonsson, Pascal, Zorn, Stefan, Sandra, Lindbom
Chi-Lin Lucas-Lucas
Watch video

Design and Development of Lattice Structures for Additive Manufacturing (DDL)
Cranham, Lewis, England, Craig, Wiedmann, Andrew, Lockett, Brian
Chi-Lin Lucas-Lucas
Watch video

Geometrical Characterization of Powder Bed Fusion Systems Based on Geometrical Features (GCP)
Wimmer, Lisandro, Wolter, Sebastian, Patrick, Christoph, Brunner, Stefan, Westkämper, Andreas, Bremen
Chi-Lin Lucas-Lucas
Watch video

Model-based Design of Self-Compensated, Flexible Decentralized Digital Manufacturing Systems (SCF)
Bengtsson, Kristofer, Sandberg, Anna, Demirkaya, Hongqiang, Wang, Henry, Wang, Wang, Lanqing, Lei, Ou, Jiyong
Chi-Lin Lucas-Lucas
Watch video

Multi-criteria Decomposition and Process Selection Model for Additive Manufacturing of Heterogeneous Parts (MCD)
Ali, Sajid, Luleå, Sweden
Chi-Lin Lucas-Lucas
Watch video

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Online

### B2 - Design Management - Modelling

Claudia Eckert, The Open University

A Topological Formalism for Quantitative Analysis of Design Processes (TFA)
Dong, Andrew, Sydney, Australia
Copenhagen, Denmark, Roberto, Trento, Italy
Chi-Lin Lucas-Lucas
Watch video

Criteria for Selecting Design Process Representations (CSR)
Trauer, Jakob, Wim, Sindwanek, Gisela, Wilfried, Sven, Matthias, Karlsruhe, Germany
Ingenieurbüro, Sachs Sindwanek Thiele, Zimmermann, Markus
Chi-Lin Lucas-Lucas
Watch video

Evaluation of Improvement Measures Based on Collaboration of Design and Simulation - an Industrial Case Study (CIS)
Schwagerl-Reichelt, Sebastian, Wolfgang, Bernhard, Wolfgang, Wolfgang, Bernhard, Wolfgang
Chi-Lin Lucas-Lucas
Watch video

Modeling and Simulation Approach on the Reference System and Variations Based on Product Generation Engineering for Overseas Markets (MSA)
Kyoji Kawa, Tokyo, Japan, Ichiro, Akaoka
Chi-Lin Lucas-Lucas
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Simulation of Feedback Loops in Engineering Design (SFL)
Tapio, Francesco, Wirtig, Alexis
Chi-Lin Lucas-Lucas
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### B3 - Data-Driven Design

Stanislav Gladek, Politecnico di Milano

A Computational Approach to Generate Design with Specific Style Features (CAS)
Wang, Yu, Ludwig, Zhu, Zhou, Ren
Chi-Lin Lucas-Lucas
Watch video

A Reliability Inspired Strategy for Intelligent Performance Improvement (RIS)
Ramachandran, Ashwin, Clemson, Nathan
Chi-Lin Lucas-Lucas
Watch video

Automated Functional Analysis of Patents for Producing Design Insights (AFA)
Long, Yonghe, Johanna, Maria Sanz, Sarastro
Chi-Lin Lucas-Lucas
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Detection and Classification of Surface in Principle Sketches using Deep Learning (DCS)
Bickel, Sebastian, Christian, Benjamin, Matthias, Sandro
Chi-Lin Lucas-Lucas
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Generating Design Recommendations from Interactive Genetic Algorithm Explorations: Preliminary Results and Lessons Learned (GDR)
Hamza, Tom, Peter, John Patrick, Hamza, Tom, Peter, John Patrick
Chi-Lin Lucas-Lucas
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### B4 - Design Methods 1

Allan Gentzke, University of Nevada

Mapping and Influencing Factors Affecting Cross-Disciplinary Design Framework (CFA)
Bartel, Alexander, Karlsruhe, Germany
Chi-Lin Lucas-Lucas
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Method Accepted - Finally Used? Investigation of Methods Application in Product Development (MAU)
Mathias, Ahmad, Stefan, Stefanie, Francesco, Kristin
Chi-Lin Lucas-Lucas
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Quantum Questionnaire Design Tool (QQD)
Gerald Lynch, Jerry, Gary, Kelly, Ben
Chi-Lin Lucas-Lucas
Watch video

Title Transition Emergency Need - Facing Design Challenges in Product Development Process (TEN)
Dries, Eric, Gaurhi, Rajesh, Hannes
Chi-Lin Lucas-Lucas
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The Dark Side of Methods: An Exploration of Negative Effects of Method Use and Method Reflection in Design (ADN)
Ulrike, Sebastian, Karlsruhe, Germany
Lucas-Lucas, Karlsruhe Fra
Chi-Lin Lucas-Lucas
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### B5 - Designers' thinking and skills

Maria Yang, University of Cologne

Engineering Sustainable Mindsets in Engineering Education (ESM)
Kurtz, Gabriel, Karlsruhe, Germany
Chi-Lin Lucas-Lucas
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Design Education - A Neuroscientific Study on Information and Communication Technology (ICT) Students (ICS)
Schlüter, Jonas, Karlsruhe, Germany
Fabrizio, Turner, Sa
Chi-Lin Lucas-Lucas
Watch video

Embracing Low Technologies Tools in Education: How Do Students Perceive Use of Digital Modelling Influences Its Use in Conceptual Design (FMI)
Zhang, Mengyuan, Wanqiang, Chalmers
Chi-Lin Lucas-Lucas
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Novice Designers' Use of Prototypes as Communication Tools (NDU)
Kristiansson, Gunilla, Luleå, Sweden
Jan Cronin, Christopher, Bartholomew, Gothenburg
Chi-Lin Lucas-Lucas
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### B6 - Systems Engineering Management

Jan Wikander, University of Stockholm

A Conceptual Model for Systems Engineering Competences (SPE)
Hammaset, Fredriksen, Hallo, Andreas
Bianco, Cristina, Italia
Chi-Lin Lucas-Lucas
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An Introducing Model for Digital Transformation within the Design Consulting Industry (IDM)
Hallstedt, Sofia, Lund, Sweden
Lisa, Dang Anh Luy, Ma Hong
Bruce, John, Wesley, Kenneth
Chi-Lin Lucas-Lucas
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Cardinal MVSL: Multivariate Systems Stakeholder Engage and Trend Forecasting (CMS)
Michael, Kathryn, Sandra, Jeffery, Sandra
Chi-Lin Lucas-Lucas
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Stakeholder Engage and Trend Forecasting (CMS)
Michael, Kathryn, Sandra, Jeffery, Sandra
Chi-Lin Lucas-Lucas
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Determination of Engineering Digitalisation Maturity (DEDM)
Tahira Qazaleh, Anna Sigrid Nielsen
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Operational Excellence for Systems Engineering (OESE): State of Art (OES)
Nikolas Jaeckel, Sebastian Bauer
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## B7 - Mechatronics

David Intersimone, Tu Claudiu-Dan

An Approach for Semi-Automatic Redesign of Mechatronic Products by Considering Design Optimization (139)
Walter, Lucrine, Schlick, Benjamin, Reinsch, Sandro
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Control of a Drone with Body Gestures (200)
Lim, Nicolas, Brisco, Ross, Vallely, Tiara
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Fault Functions Supporting Mechatronic Design Evolution (240)
Fuchs, Christian, Weber, Alex, Stark, Rainer
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Systemic Mechatronic Function Development (108)
Pulm, Julia, Sieber, Ralf
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## B8 - Design for Circularity

Harrison Kim, University of Illinois at Urbana-Champaign

A Look into Circular Economy Research: Exploring the Bio and Techno Cycles and the Need for Dual Circularity (208)
Mets, Judge, Kaminski, Tieri, C.Pagnoni, Gurandi, E. M.
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A Modelling Framework for Circular Business Models for Sustainable Behaviour in Human-Machine Interactions (075)
Monteiro, Ana, Sousa, Nicolas, Nicolai, Christoph
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Circular Economy and Sustainability Research Review of the Current Research Streams (98)
Tonese, Adriano Anderson, Calarvalho, Isabele Simões Lira, Gregoire, Yang
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Exploring Local Recirculation of Paper Waste: Upcycling and Kirimi Recycling (171)
Ibring Lopez, Nicole Sofia, Fuschino, Jenny
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Strategic Design Opportunities to Enhance Consumer Fashion Awareness and Behaviour (092)
Dai, Kevin, Hemmerich, Laura Marie, Ingrid, Du Bois, Ele
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## B9 - Design for Patient-centred Care

Anja Maier, JSI - Technical University of Denmark

Design for Positive Brown Self-Exam Experience Using Mobile Apps (082)
Karaatmo Kayla, Aylin, Sener, Sahar
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Exploring the Combined Use of Skilled Diaries and Photography by Patients in their Process of Self-care with Multimodality Technology (038)
Card Lorenzetti, Elaine, Ghezzi, Annika
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Growing Up and Moving On - Insights from the Health Care Professionals and Adolescents' Perspectives on Transition and Barriers in the Transfer of Care from Paediatrics to Adult Care (081)
Gilmore, Mie, Jensen, Christian, Dr. Louise Wiuf, Dr. Zach, Hartigan, Mie, Bernard
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Systems Approaches to Healthcare Systems Design and Delivery: An Overview of the Literature (054)
Kumarika, Alexander, Vincent,Vincent, Saba, Chatzias, P. John
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The Perspectives of Clinicians on Enrolling Patients Participating in Clinical Context: A Qualitate Study (010)
Alves, Vincent Ferrugia, Philip, Dean, Maria Victoria, Balson, Emanuel, Iella, Francesca
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15.00 - 15.30 **Powered By Gathersen**

## Online Mingle Break

join

15.30 - 16.30 **Online**

## Presentation Block C: Parallel sessions C1 - C9

Online

## C1 - Design for Additive Manufacturing (DfAM)

Arsian Kaveizi, Universität der Bundeswehr München

Identification of Optimization Areas of a Transtibial Prosthesis Based on Requirements of Additive Manufacturing Processes (178)
Steffen, Ang Kok, Vien, Michael, Kurth, Daniel, Krichner, Gerhard
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Investigating Perceived Shortcomings and Scope of Design for Additive Manufacturing (DfAM)
Mario Acevedo, Bongkyun, Park, Chris, Martins, Frando, Patrick, Bibb, Richard
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Method to Define Measurement Uncertainty for Design Characteristics in Additive Manufacturing (073)
Cascales, Valentine, Ms Alba, Audrey, Fischer, Xavier
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Review of Design Methodologies for Additive Manufacturing (236)
Hatak, Filip, Lindbad, Angelica
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Thread Rolling Repair Technology for Damaged Bolts (204)
Kazzamel, Tim, Mohammad, Eskandar, Tobiasch, Philipp, Lowe, Manuel
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## C2 - Design Management Approaches

Magnus Persson, Chalmers University of Technology

A Proposal for Method Transfer Based on Successful Examples of Product Development Transfer (241)
Kohler, Christian, Lundeke, Tobias F., Conradi, Jan, Gottdiener, Michael
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Approach for the Development and Application of Target Function Models for Product Families (241)
Albers, Albert, Wilmsen, Miriam, Sarecka, Ellen
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Identifying the Factors Influencing the Replicability of Open Source Product Designs (063)
Antonino, Raffaella, Pinquié, Romain, Bouyer, Jean-Francois, Gaud, Nicolas, Delaunoit, Yves
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**BEHIND THE SCENES**
**VIDEO 1**

What is Generative in Generative Design?: Uncovering Topological Properties of the Search Space of Evolutionary Algorithms. (262)
Hatchan Jerwood, Jo Weston, Pascal, Thomas, Maxime, Weil, Benoit
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The Logics of Double Proof in Proof of Concept: a Design Management Approach to Experimentation in the Unknown (300)
Jules, Caroline, Hugo, Sophie, Le Masson, Pascal
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**BEHIND THE SCENES**
**VIDEO 2**

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On-site & Online

## C3 - Machine Learning and Design Management Approaches

Filipus Chandra, University of Pisa

Approach for the Automatic Design-based Design of Mechanical Joints. (119)
Zengeler, Christoph, Schleich, Benjamin, Wartzack, Sandro
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Capturing Mathematical Knowledge Representation of Shape and Form Through Machine Learning (115)
Gopnik, James, Stouffenwerk, Mark, Jones, David, Hicks, Ben
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Designing a Data Driven Decision Analytic Tool for Supporting Decision-Making with Public Transportation Network Data (117)
Kadde, Bindu Priyadarshini, Alemayehu Annaye, Ahmed, Fouad, Juliette
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Euclidian Distance Transformation, Mass aus Rotation and Nearly Convolutional Cross-Section: Classification with Convolutional Neural Networks (334)
Derek, Nicolas, Ulrich, Stephanie, Hollo, Tobias, Mathiesen, Jan, Pawlaski, Kristin
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Parametric Cost Modelling of Components for Manufacturing: Preliminary Study (198)
Carter, Federico, Mandolini, Marco, Tamburo, Federico, Fiori, Claudio, Garofano, Michele
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## C4 - Design Methods 2

Matteo Vignoli, University of Bologna

Classification of Product Variations based on Changes in Product Form and Function (017)
Lux, Frederic, Tuttel, Mohammad, Kim, Sebastian
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Modeling and Implementation of the Companies' Internal Crowdsourcing-Based Ideation (097)
Cimino, Pavel
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Product vs. Production Design Integrated Product, Production, Material and Joint Definition (301)
Stoffels, Pascal, Kaiser, Jerome, Lanza, Gisela
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Structure Sharing and Multi-mode Integration in Successful Designs: An Empirical Study (039)
Ainslaw,Kenneth, Ertmann, Engel, Hinrich
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Supporting Early Stages of Design Method Validation - an Approach to Health Applications (199)
Eisenmann, Hannes, Gruebinger, Fazio, Matthiesen, Sven
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**VIDEO 3**

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## C5 - Design Teaching examples and experiments

Ross Brisco, University of Strathclyde

Engineering Student Attainment and Engagement Throughout the Design Process (078)
Thomson, Avril, Graham, Hilary
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Extended Taxonomy of Design and Innovation Games to Identify Perspectives of Development and Implementation (096)
Bhat, Apoorv Ramesh, Acharya, Shakunthala Chakradhar, Amarnath
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How Covid-19 Enabled a Global Student Design Team to Achieve Breakthrough Innovation (330)
O'Sheing, Jonathan, Jackson, Johanson, Christian Frank, Martin,Carsten, Andreas, Larssen, Tobias Lotte, Larry
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Introducing Multidisciplinary Design Optimisation to Undergraduate Engineering Students (306)
Papagiannis, Athanasios, Wilberg, Jochen, Hecht, Lothar
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Shifting From Blended to Online Learning: Students' and Teachers' Experiences (304)
Polat, E. Yasi,Sam, S.J., Batmaz, A.U.
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## C6 - Designers' Thinking

Amaresh Chandrasen, Indian Institute of Science

Brain Activity of Industrial Designers in Conceptual and Open Tasks: Effect of Gender on Frequency Bands (300)
Hera, Ivana,Calvo de Ibisa, Benedetta, Mathias, Sara, John S., Cassim, Gaetano, Ferrarello, Fabio
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Correlating Design Performance to EEG Activation Early Ideation Phase: An Experimental Data (407)
Li, Shumin, Bezerra, Ricardo, Cascini, Gaetano
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Modeling and Profiling Student Designers' Cognitive Competencies: Preliminary Results (304)
Clay, John, Li, Qingyu, Eatman, Wade Hartman, Fu, Charles, Shu, Shanghui
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Study on the Impact of Cognitive Load on Performance in Engineering Design (216)
Zimmerer, Christoph, Matthiesen, Sven
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Temporal Dynamics of Brain Activation During Design Ideation Generation Techniques (413)
Wilkinsonson, Jake, Yu, Wei, Treasy, Tristan Gary, John
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## C7 - Systems Engineering Tools

Jan Mikkelsen, University of Groningen

Concept Maps Collaboration Creation in Product Lifecycle Management (226)
Ohsima, Daisuke, Sandeep, Mirdeel, Kenichi, Ryo, Kenichi
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Designing a Model Based, Multi-Perspective Process Design Environment (190)
Elsbeul, Ad, Reich, Yoram
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Developing Systems Visualisations in Design through a Typology of Visual Tools a Mechatronic Case (092)
Ingrid, Du Bois, Ele, Dai, Kevin, Hemmerich, Laura Marie, Albert, Albert, Ingrid, M.
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Integrated Natural Resource and Environmental Development Project: A Review of Success Factors from a Systems Perspectiva (208)
Kajala, Pekka, Kaunisto, Kaisamiinna, Pekka
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System Design Canvas for Identifying Leverage Points in Complex Systems: A Case Study of the Agricultural System Models, Cambodia (213)
Kamari, Aemen, Kosiba, Alina, Nakamura, Shuichi, Ma, Yu, Kohlbacher, Rudolfo
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## C8 - Design for Circularity Methods

Panos Papadopoulos, University of Michigan

Conquering Life Cycle Impact Assessments, Circularity and Sustainability Metrics for Sustainable Designs: Results from a Hands-on Project with 87 Engineering Students (300)
Sanders, Michael, Grabowska, Martha, Chanel, François, Pigeaux, Danielle, Leroy, Yann, Kim, Harrison
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Design for Longevity - A Framework to Support the Designing of a Sustainable Product Lifetime (186)
Carlsson, Simon, Malefaka, Adam, Annette, Lyn, Rasmussen
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Exploring Sustainable Product Development processes for a Circular Economy: Morphological Analysis (322)
Ellen Tiny, Anna, Strategy, Josef Peter Ryan, Natasa, Baumgartner, Rupert J.
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Method for Upgrading a Component within Remanufacturing (300)
Sauter, Rafael Morais, Bulla, Bernard Gambardi, Paul Christoph, Lachmayer, Roland
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Upcycling Obsolete Mechanical Equipment: Design Tools and Laboratory Test Rigs a Low-Cost Solution or a Sustainable Design Approach? (450)
Engelhardt, Dirk, Ramirez Gastelum, Kathyrine, Ximena, Valentina, Gonzalez, Valeschka, Christina, Kaiserlis, Georgios, Mantzopoulos, Angelos P., Agelos, Vasilios
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## C9 - Design of Medical Devices

Philip Farrugia, University of Malta

Designing an Alternative Approach to Evaluation of Inclusive Design for Social Impact in Low-resource Settings (159)
O'Sullivan, Cara
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Development of Open Source Medical Devices: Methodology Methodology (146)
Sierra, Alexandra, Rivera, Sofia Isaac, Juan Felipe, Montoya, Iván Darío, Díaz, Diana Carolina, Ramírez, Diego, Osorio-Gallego, Diego, Lopez, Jonathan, Castellanos
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Methodology for a Tailor-Made Approach to Medical Device Development of an Initial Consultation Design (300)
Dreier, Tobias, Kanzler, Steffen, Plathow, Christian, Schlemmer, Heinz-Peter
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Personal Technology Use Amongst Stroke Patients: Implications for Design Platforms for the Design of Health Interventions in Treatment and Rehabilitation (210)
Ramirez Gastelum, Kathyrine, Associate de la Cruz, Frederic, Thomas, Jane, Rosemary, Sandhalsmer, Bingqian, Hayley, Rose, Anja
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What Can Be Learnt From 100 Children's Medical Devices? Designed Working Data centred Insights Using an Interdisciplinary Design Analysis Framework (300)
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16.30 - 16.45

## Break

16.45 - 17.45 **Powered By Gathersen**

## YOUNG MEMBERS EVENT ONLINE

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17.45 - 18.00

## Break

18.00 - 18.30 **On-site**

## Transport To Boat Tour

18.30 - 21.30 **On-site**

## Boat Tour

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| 13.00 - 13.45 | Online | 13.00 - 13.30 | Online |
|---|---|---|---|
| | Chalmers Campus Tour | | **Design Society Nordic Chapter Meeting**<br>Ola Isaksson, Chalmers University of Technology<br>Jens Ohlsson, Linköpings University of Technology<br>join |

**Special Interactive Sessions**

| Online | |
|---|---|
| Workspaces (Exhibitions)<br>Axel Thevenot, Lynne Blanchard<br>join | Pitch Forum<br>Philip Cash, Oscar Lecuona<br>join |

13.15 - 13.30

**Break**

13.30 - 14.30 **Presentation Block D: Parallel sessions D1 - D9**

Online

**D1 - Lightweight Design and Efficiency**
Marina Candia, Politecnico di Milano

A Structural Approach to Reduce Design Variations in Additive Manufacturing
Mirko Gaspari, Massimo F. Bertino, Pawandi, Kristian
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Addition Refurbishment of a Flexible Modular Structural Component
Carlos Mota, Marcia Oliveira, Tiago Gomes, Gerdemann, Paul Christoph, Lachmann, Marc
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Comparing Environmental Impacts of Metal Additive Manufacturing and Conventional Manufacturing (CM)
Ali Ali, Ahmad Ali, Ahmad Suliman
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Re-design of a Commercial Jig for use in Dual Traffic Conceptual Design and Analysis
Tilemachos Zachos, Papadopoulos, Vasilis, Moschovis, Fausto S.
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Support Free Metal Additive Manufacturing: A Simulation Method for the Good of the Art in Industrial Practice
Helen Sabanoglu, Mariana, Joaquim, Marco Aurelio, Martinez, Francisco, Arturo
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**D2 - Design of Organisational Processes**
Martin Eckert, University of Leeds

Barriers and Opportunities of Implementing Design Thinking Approach in Development Process of a Business to Business Company
Arunangsu Chatterjee, Ramachandran, Balachandran, Nelson, Ramachandra
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Decentralization and Reorganization Strategies of Manufacturing Companies Using Design Futures Skills
Mirzaeiyeh, Jalal, Sara, Lynn, Becker, Jens
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Estimating Design Effort Based on Predictive Design Process Using Supervised Machine Learning Algorithms
Hoffmann, Alexander, Trondsen, Thomas, Lindemann, Udo
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Free Designers Supporting Design Practitioners (V2)
Andersson, Torbjörn, Ohlander, Johan, Lindahl, Jonas
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Towards a Debate on the Future of Design Engineering Design (DE)
McMahon, Chris, Cickert, Claudia, Fadel, Gary
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Online

**D3 - Design Methods 3**
Ola Isaksson, Chalmers University of Technology

Design by Material: From Design Principles to Through CAD Modelling (DM)
Cristina Agulló, Gerard Gumbert, Beatriz, Eugenio, Alejandro, Jose
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Modelling Design Tools for Supporting Product Design Approach Alternatives Parts for Navigating Sustainability Assessment
Nicolas Lenaerts, Kevin, Alex, Gottberg, A Robert
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Modelling Proportions Based Design Operations in Team Design Activities (MB)
Ulusoy, Ozan, Ozkan, Ozge, Ozcelik, Ozge, Ozcan, Ozge, Ozcan, Ozge, Ozcan

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Online

## E6 - Social Innovation and Responsibility

Boris Eisenbart, Swinburne University of Technology

Construction of the Mapping of Corporate Social Responsibility Practices in Managed during the Design Process: Application in the Automotive Industry (CSR)
Capanoglu, Irem; Lopez-Ripoll Carrillo, Tatiana; Garcia, Julian
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Deeper Comprehension of Basic Environmental Issues Through Serious Game Design
Hendricks, Melissa; Gray, Bernard
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Definition of Driving Factors for Designing Social Innovations in the Context of Smart Cities
Lucendo, Sara; del-Hoio, Audrey; Hamse, Mikhail; Santi, Bianca
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Integrating Social Impact Measures into the Ecodrop Design Process (4R6)
Richards, D.C.; Hendersen, Phillip D.; Hassan, Chaitanya; Gardner, John J.
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## E7 - VR and Design Creation

Peter Forbrig, Lulea University of Technology

3D Sketches in Virtual Reality and their Effects on Development Times (1411)
Seyfried, Carsten; Marxsen, Frank
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Prototyping in Social VR: Anticipate the unanticipated outcomes of interactions between AI-powered solutions and users. (4F9)
Bonner, Chase; Kozlowski, Tim Sierra; Carpani, Cecilia; Tomimatsu, Ryan
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Use Interactive Media to Foster Creativity of Designers by Stimulating the Senses in the Context of Art Design Education (4T5)
Chu, Fanwei; Ma, Yuan; Chiabuchi, Ryan; Chiabuchi, Yuan
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User Experience Study on Ideating Wearables in VR (4Z2)
Van Gaalen, Sander; Verhoeven, Joukje; Wells, Matthew; Gielen, Marc
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Virtual Brainstorming and Creativity: An Analysis of Measures, Environments, Tools and Applications (1Ma)
Ewing, Zhenguo; Yamazaki, Yuta; Vijayakumar, Suyanna; Sanal Ahmed, Georgies; George G.
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## E8 - Modularisation

Vahid Salehi, Munich University of Applied Sciences

Adoption of Modular Design by Makers and Prosumers: A Survey (1Z8)
Jeziorska-Sufter, Julia; Lopez-Formoso, Ignacio
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Current Trends and Developments of Product Modularisation - A Bibliometric Analysis (1Z9)
Bertoni, Marco; Bertoni, Christopher; Grove, Erik; Krause, Dieter; Meyer, Matthias
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Extending Product Family Design Methods to Product Service System Family Design (1Z7)
Rosen, David; Chen, Young M.
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Improving Decision Making in Product Modularization: Process Based Management Training (5A9)
Persson, Magnus; Hauser, Juliana; Angspatt Pramos, Paul
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Optimization of Naval Ship Compartment Layout Using Genetic Algorithm (2Z9)
Dhanesh Pragada, Venkata Aditya; Banerjee, Maandrita; Venkatarraman, Srinivasan
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## E9 - Product Service Systems

Johan Malmqvist, Chalmers University of Technology

Data-Driven Design Automation for Product-Service Systems Design: Framework and Lessons Learned from Industrial Studies (5B6)
Wachsmuth, Raj-Gero; Bertoni, Alessandro
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Evaluating Prototyping Support in Early Transformative PSS Design (4T4)
Rundl, Rainer; Hallstedt, Andreas; Johansson Jeleng, Christian; Bertoni, Alessandro; Larsson, Tobias
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Fuzzy-based Framework for Managing Inter-enterprise Collaborations in PSS Design (5A8)
Hanna, Mourad; Belkadi, Farouk; Bernard, Alain
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Life Phases Modularisation of Product-Service Systems (1M6)
Kernbichler, Sebastian; Krause, Dieter
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Model-Driven Product Service Systems design: the Made-Driven Development Approach (MDDD) and the Modelling approach (2B9)
Bertoni, Alessandro; Larsson, Tobias; Wall, Johan; Johansson Arding, Christian
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16.15 - 16.45

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## Online Mingle Break

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16.45 - 17.45

## Presentation Block F. Parallel sessions F1 - F8

Online

### F1 - Design Methods Evaluation

Dino Demirovski, University of Bath

A Comparison of Conceptual Design Learning and Photogrammetry for the Digitisation of Physical Prototypes (1E5)
Trapmann, Dennis; Gerhard, Gerhard; Hack, Felix; Bin, Jonas; Gaiot, Nicolas; Aydin, Sinan; Chris, Yves; Jasen
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Investigation on the also Influence of the indicator of correct solutions in functional analysis in engineering design (2D5)
Zimmermann, Alexander; Thomas, Matthias; Sven
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On Solutions, Diversity, and Creativity in Teaching in Civil Engineering and Architectural Design. A Review of Assessment Tools. (2N6)
Zalis, Matthias; Dunsch, Frank
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The Challenging Combination of Agility and Convergence in Hybrid-Product Development Processes: Experiences from Sanofi's MEDYS Process Model (2N6)
Kuppenbiggler, Frank; Bilzner, Tim; Held, Tobias; Wecht, Christoph; Kuhlman, Paul Dawn
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Tracing the Emergence of Design Problems and their Impacts on the Complexity of Engineering Solutions (2N7)
Bertrand, Tristan; Grover, Dean; De Bock, Maarten; Classen, Ian; De Boer, Marco
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### F2 - Design Studies

Julie Stal Le Cardinal, ZenexAnalytics, Université Paris-Saclay

Analysis of Customer Sentiment on Product Quality during the Outbreak of Coronavirus Disease (COVID-19) based on Online Reviews (1K8)
Kim, Jiyu; Park, Sooyong; Kim, Harrison
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Computational Study on Design Space Expansion Using Deep Generative Models
Parrish, Kevin; Chaudhari, Pinar; Marks, Gary; John S.
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Exploratory Research on Cultural Computing for Supporting Design Innovation. The Case of Sustainability. (2T9)
Cerruti, Ana; d'Cunzo, Irina; Toussaint, Yoodap
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Robust Multi-Objective Optimization in Product Development Chains: Respect to User-centric and Manufacturing Uncertainties (3F6)
Wormut, Philipp; Cramer, Jakob; Lachmayer, Roland
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The Research Domain of Product Service Systems: Mapping the Customer & Systematic Mapping (4Y2)
Tofur, Can Kilic Kurnaz; Bertoni, Marco
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### F3 - Product Service Systems and Sustainability

Marco Bertoni, Blekinge Institute of Technology

Chinese Product Service System Innovations Enabled via Governmental Policies: The E-Scooter Case (5D8)
Yan, Zhang; Larsson, Tobias; Larsson, Andreas
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Developing the Material Service System Concept: A Case Study of Steel Industrial Drums (5E8)
Engelmann, Anais; Zancan van der Laan, Arnaud; Ait, Kaddour; Nyborn, Lars; Aurelischka, Marco
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Implementation of Maintenance Strategies in the Life Cycle Costing of Product Service Systems (2B5)
Schneider, Jannik Alexander; Wurst, Johannes; Gratzmann, Ines; Weigand, Yanick; Lachmayer, Roland
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Investigating Drivers and Barriers for the Development of Product-Service Systems in Capital Goods Manufacturing Companies (5A9)
Sarasini, Giorgio; Bertoni, Marco; C., A.; Wuttesee, Tim C.
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Zooming In on Product-Service System Ecodesigning: A Novel Analysis Approach and Application to a Case Involving Engineering Practitioners (5C9)
Neuendorf, Lisa; Bertoni, Marco
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### F4 - Cyber-Physical Systems Design 2

Alessandro Bertoni, Blekinge Institute of Technology

A Multi-Agent Reinforcement Learning Framework for Intelligent Manufacturing with Collaborative Mobile Robots (5D6)
Agrawal, Akash; Nian, Sung-Lin; Sharma, Tushar; Deshpande, Rituja; McComb, Christopher
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Design of and with Sensing Machines Elements - Using the Example of a Sensing Rolling Bearing (5E5)
Schmitz, Tobias; Wurst, Jan; Kirchner, Eckhard
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Development of a General Sensor System Model to Describe the Functionality and the Uncertainty of Sensing Processes (5E6)
Hartmann, Maximilian; Weißhuhn, Peter; Kirchner, Eckhard
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On the Use of Model Based Systems Engineering and CAD for Cyber-Physical Products (5F6)
Meusser, Bernhard
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To Support IoT Collaboration Expressiveness on the Design Table (5G6)
Arnold Rosfort, Rosario; Wiberg, Yvonne; Tamantini, Yuji; Fjeld, Ulrika; Sundstrom, Kristian
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### F5 - VR Processes and Experiences

Andreas Dagman, Chalmers University of Technology

Mixed Reality Prototyping Synchronicity and its Impact on a design workflow (1Y5)
Ferry, Nicolas; Ait-Ali-Yahia, Rios
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On the Activation of Students through Augmented Reality Experiences (1W5)
Tangy, Mohamed Habib; Sauterer, Roman
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Product Development Methods in Virtual Reality (5A6)
Gatzemeier, Hans-Patrick; Stechert, Carsten
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Seeing from the Users' Eyes: An Outlook to Virtual Reality Based Empathic Design Research (4M6)
Hedlund-Thoresson, Cecilia; Wallman, Ola; Hjertqvist, Jörgen; Ji, J.
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The Immersion Cycle: Understanding Immersive Experiences through a Cyclical Model (4N2)
Lucho Cangiano, Rodrigo; J. Wang, Yanwenxia; Arvola, Ylva
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### F6 - Model-based Systems Engineering

Ben Hicks, University of Bristol

Applications of Munich Agile Concepts for MBSE as a Holistic and Systematic Design of Urban Air Mobility in Case of Danger of Helicopter Landings (1A8)
Salehi, Vahid; Wang, Shirui
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Proposing a Specification Structure for Complex Products in Model-Based Systems Engineering (MBSE) (1Z9)
Kant, Jonas; Hirschler, Tobias; Wöhrle, Hannes; Gauchel, Jörg
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Study of System Interfaces Through the Lens of Complementarity (4A6)
Brosse, Fiona; Nevelsteen, Stanislas; Florio, Clement
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System of Systems Lifecycle Engineering Approach Integrating Model-Based Systems Engineering (4D5)
Forno, Sami; Gabel, Jens Christian; Stanzel, Thomas
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Using Model-Based Systems Engineering for Need-Based and Requirement-Based Design Processes (4E6)
Hoyung, Stephen; Weber, Christian; Matthews, Jack; Wallace, Sean
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### F7 - UX Processes

Helena Strömberg, Chalmers University of Technology

A Conceptual Model for Integrating Design Thinking and Lean Startup Methods into the Innovation Process (2Y5)
Ahmed, Sabbir; Wallace, Kristin M.; Fahmy, Mohamed; Jeniscarlos
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A Data-driven Approach to User-experience Focused Model-based Roadmapping for New Product Planning (4D6)
Ahlgren, Kristofer; Ekman, Peter; Johansson Anna, Fahlna Claudius; Abdelkrim, Jankovic, Marija
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Mitigating Company Adaption Barriers of Design-Driven Innovation with Human Centered Design (5N6)
Brink, Rikard; Ekman, Peter; Sundin, Erik; Kristofer, Anna
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Re-Defining the System Boundaries of Human-Centred Design (4M6)
Cali, Carlo; Vallee, Yves; Grosjean, Stefan; Hanna, Bernard
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Towards a People-First Management Approach. A Comprehensive Ontology for Designing Inclusive Workplaces (2D6)
Fernandez, Claudia; Zafra, Rodrigo; Berry, Gemma; McGinley, John
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### F8 - Lightweight Design

Dieter Krause, Hamburg University of Technology

Derivation of Mechanisms for the Use of Aluminum Foam Sandwich and Fiber Composite Applications (5T5)
Hoenerl, Patrick; Roth, Daniel; Binz, Hansgeorg
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Extended Target Weighting Approach (ETWA): Impact and risk based design optimization concepts in the product production system co-design (2D7)
Albers, Albert; Sturmhöfel, Tobias; Roth, Sven; Bertram, Karsten
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Method for Identifying Suitable Components for Functional Integration Based on Geometrical Characteristics (1T8)
Voigt, Michael P.; Kaiser, Dominic; Hoenerl, Patrick; Roth, Daniel; Binz, Hansgeorg; Weber, Thomas
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Part Orientation and Separation to Reduce Process Costs in Additive Manufacturing (5E1)
Rietzwann, Jannik; Kirchner, Eckhard
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Substitution Surface Mid-Surface Reconstruction of Topology Optimization Results and Thin-Walled Shapes using Surface Skeletons (1S8)
Chen, Xiao; Ma, Yongsheng; Pasquale, Kristian
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17.45 - 18.45

Online

## Design Society Annual Meeting

The Design Society General Meeting 2021

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18.45 - 19.30

## Break

19.30 - 23.00

Decade

## Conference Dinner

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# THURSDAY 19TH

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**12.15 - 13.15**

## Presentation Block E, Parallel sessions G1 - G9

### G1 - Developments in Design Methods

Tomofumi Sakata, Keio University, Japan

Online

- A Design Rationale Analysis Method Towards Robust Artifact Design — Tomofumi Sakata, Yusuke Nishiura, Yuya Yoshikawa, Wataru Inoue, Shigeru Shimamoto — Click to zoom present — Watch video
- An Adjacent Method for Design Process Capturing to Meet the Demand for Product Development (ADC) — Genichiro Sumi, Masaki Suzuki, Makoto Mizuno, Masayuki Suzuki, Masnari, Sanehi — Click to zoom present — Watch video
- An Approach to Enhance Product Commonality using Vague Numbers — Tomofumi Sakata, Shigeru Shimamoto — Click to zoom present — Watch video
- Concept for a Persona Driven Recommendation System Based on Modelling Approaches (CPR) — Stefan Kaiser, Kathrin Claßen, Carolina Alves, Dominique Freyer — Click to zoom present — Watch video
- Structuring Human Augmentation with Generative AI — Dario Rosa, Kevin Finn, Kristi Kuusk — Click to zoom present — Watch video

PANDEMIC FLOWERS — Q&A

pm

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### G2 - Sustainability Cases Studies

Michael Eisfeld, Siemens, Germany

Online

- Applications of a Holistic Approach of Geological Internal Combustion Engine Design Cases (IGB) — Gabriel, Sahid Chaudhuri — Click to zoom present — Watch video
- From Planned Obsolescence to the Circular Economy in the Electronic Industry: Evolution of Strategy Embedded in Product Features (FOR) — Marina Rita, Simona Zoia — Click to zoom present — Watch video
- Support Users Towards More Conscious Energy Consumption Habits a Case Study (SEC) — Giuseppe, Francesca, Luca Di Bianco, Spatrisi, Elena — Click to zoom present — Watch video
- Sustainable Design of Packaging, A Case Study in Collaborative Design Tools (SDP) — Tania, Ana, Ginting, Kaisheng — Click to zoom present — Watch video
- Understanding the Embedded Carbon Challenges of Building Service Systems (CH) — Hans, Maria, Jonas, Darren Mathony — Click to zoom present — Watch video

PANDEMIC FLOWERS — Q&A

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### G3 - Digital Twins

Tobias Lorenzo, Belinga Institute of Technology

Online

- Creation of Digital Twin Models Based on Physical & Virtual Testing in Mechanics Product Development (DM) — Sacra, Carrillo, Stack, Michael, Erasmo, Ricardo, Ricardo, Ricardo, Ricardo, Lauzon, Thomas, Alexis, Alexis, Keshtiban, Sven — Click to zoom present — Watch video
- Digital Twins — Tobias, Damon and Business Scenarios for different Industry Sectors — Wilfried, Wilfried, Wilfried, Bergsjöo, Marcusen, Sandra — Click to zoom present — Watch video
- Exploring the Potential of Digital Twin-driven Product Service Systems (DDS) — Rasmussen, Julian, Tharanika, Basanta, Bertoni, Marcus, Bertoni, Marcus — Click to zoom present — Watch video
- From Requirements to Prototyping: Application of a Digital Twin Integration Methodology in Digital Twin Design (DTI) — Carlos Eduardo, Milton, Milton, Dimitri Villanueva, Eric, Eduardo, Eduardo — Click to zoom present — Watch video

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### G4 - Product and System Modelling

Sarah Stein, TU Kaiserslautern

Online

- Introducing a Methodology to scale and Evaluate the Cost Effects of Product Family Concepts (MCE) — Mesters, Rick, Zimmermann, Marek, Fritz, Thomas — Click to zoom present — Watch video
- Monitoring Consistency Between Product Ideation and Engineering Product Development (TIE) — Wanke, Wilson, Rita, Engel, Ulrich, Vera — Click to zoom present — Watch video
- Simulation-Based Optimization of Product Architectures (SBO) — Dandekar, Ronald, Dr. Wan, Jan — Click to zoom present — Watch video
- Supports for Managing Family Configuration Modular Systems (CM) — Fleissner, Johnny, Hellström, Tomas, Lindman, Mats, Ericsson, Mattias, Larsson, Lynn, Tore — Click to zoom present — Watch video
- Two Fold Optimization of Product Families Applied to a Product Family of Water Hoses (TFO) — Kristin, Sebastian, Ed Benjamin, Martin, Thomas, Dominik, Dominik, Markus — Click to zoom present — Watch video

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### G5 - Teamwork in Design

Bertrand Tchanou, Centralesupélec, Université Paris-Saclay

Online

- Comparing Design Optimism Achieved by Engineering Novice Designers Through Agent-Based Simulation (CDO) — Sagar, Jonathan, Cassandra, Cassandra, McCrae, Christopher — Click to zoom present — Watch video
- Exploring the Role of Transactive Memory Systems in Design Teams Making Sense (TMS) — Bertrand Tchanou, Matthieu Bricogne, Nicolas Maudet, Jean-Marc Robin — Click to zoom present — Watch video
- How Familiarity Impacts Influence in Collaborative Design? (CIN) — Sagar, Anjanika, Bacarini, Nicolas, Bertrand, Bertrand — Click to zoom present — Watch video
- Remote Brainstorming: Methodological Considerations Emerging from a Dissonant Case — Gonzaga, Laurence, Acosta, Marcos, Lotto, Luca Marchesan, Jan Adrian — Click to zoom present — Watch video
- The Positive Impact of Agile Retrospectives on Design Teams' Collaborative Development Teams — a Practical Approach — The Example of Scrum — Scott, Johannes, Ernesto, Pouyan, Hermine, Jonas, Tore, Emma Maria, Eric, Sandra, Sandra, Sandra, Sandra, Marcus, Marcus, Marcus — Click to zoom present — Watch video

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### G6 - Design in Motion

Georgios Gogos, Chalmers University

Online

- Concept Development Process for Stores of Autonomous Vehicles (CDP) — Wang, Jenna, Yoshioka, Thomas, Alexander, Karin, Nordstrom, Alexander, Karin, Nordstrom, Karin, Nordstrom, Karin, Nordstrom, Karin, Nordstrom, Karin — Click to zoom present — Watch video
- Facilitating Micromobility for First and Last Mile Connection Trips in Cities through Environmental Design: A Case Study of Stockholm Based on Rapid Transit Stations (FM) — Hongqiao, Bjorn, Bjorn, Bjorn, Angela — Click to zoom present — Watch video
- Exploiting Planning of Autonomous Vehicle Concepts (TIS) — Tobias, Tobias, Tobias, Tobias, Michael, Pascual, Fredrik, Daniel, Bruno, Bruno — Click to zoom present — Watch video

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Systematic Analysis of Design Factors Causing Generation and Release Vehicle Emissions — Fabian, Daniel — Click to zoom present — Watch video

The Age of Design - How Technological Innovations Shape Cross-Disciplinary Collaboration Within Automotive Product Development — Hanning, Caroline, Ola, Sara, Francesca, Michael, Pascual, Fredrik, Daniel, Bruno, Bruno — Click to zoom present — Watch video

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### G7 - Design Information and Knowledge

Peng Mengqiu, Chalmers University of Technology

Online

- Design Knowledge Representation with Technology Semantic Network (DKR) — Mengqiu, Samuel, Lars Hanson — Click to zoom present — Watch video
- Quantifying the Quality of Knowledge Transfer in Product Development (QKT) — Mengqiu, Mengqiu, Mengqiu,

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## H6 - Knowledge Management

Chris McMahon, University of Bristol

**Data for Engineering Design: Maps and Gaps (198)**
Chiarello, Filippo; Coli, Elena; Giordano, Vito; Fantoni, Gualtiero; Bonaccorsi, Andrea
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**Design Knowledge Reuse in Design of Progressive Stamping Tools: A Qualitative Study (311)**
Jonsson, Carl-Johan; Stolt, Roland; Elgh, Fredrik
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**Experiences from Starting and Running a Software Company within the Context of Design Research (540)**
Bergsjö, Dag; Catic, Amer
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**Multidisciplinary Design Optimization of a Mobile Miner using the OpenMDAO Platform (373)**
Vidner, Olle; Pettersson, Robert; Persson, Johan A; Ölvander, Johan
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**Understanding Users and Products in Product Development: The Application of Product Usage Information and its Challenges (269)**
Deng, Quan; Wellsandt, Stefan; Hribernik, Karl; Thoben, Klaus-Dieter
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## H7 - Product-Service Systems Design

Anna Öhrwall Rönnbäck, Luleå University of Technology

**A FMEA Based Method for Analyzing and Prioritizing Performance Risk at the Conceptual Stage of Performance PSS Design (502)**
Sakwe, John Bake; Pereira Pessoa, Marcus; Hoekstra, Sipke
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**An Evaluation Method for Business Models in Product-Service Systems Design (519)**
Oh, Sanghyun; Hong, Yoo S.; Lee, Jihwan; Kim, Yong Se
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**Design for Continuous Use of Product-Service Systems: A Conceptual Framework (326)**
Nemoto, Yutaro; Dhiman, Hitesh; Röcker, Carsten
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**Digital Transformation Types for Product-Service Systems (430)**
Kim, Yong Se
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**Engaging End Users in an AI-Enabled Smart Service Design - The Application of the Smart Service Blueprint Scape (SSBS) Framework (510)**
Li, Fan; Lu, Yuan
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## H8 - Design Tools and Methods

Akane Matsumae, Kyushu University

**A Framework for Predicting Potential Product Impact During Product Design (409)**
Mabey, Christopher S.; Armstrong, Andrew G.; Mattson, Christopher A.; Salmon, John L.; Hatch, Nile W.
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**Accelerated Parameterized Computation of the Thermal Behaviour of Dual Purpose Casks (175)**
Roppel, Matthias; Lange, Christopher; Roith, Bernd; Rieg, Frank
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**Configuring Customized Products with Design Optimization and Value-Driven Design (375)**
Vidner, Olle; Wehlin, Camilla; Persson, Johan A; Ölvander, Johan
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**Nodal Cosine Sine Material Interpolation in Multi Objective Topology Optimization with the Global Criteria Method for Linear Elasto Static, Heat Transfer, Potential Flow and Binary Cross Entropy Sharpening (160)**
Denk, Martin; Rother, Klemens; Zinßer, Mario; Petroll, Christoph; Paetzold, Kristin
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**Using Effect Catalogues for the Design of Sensing Machine Elements - Method and Exemplary Application (191)**
Harder, André; Gross, Hans Joachim; Vorwerk-Handing, Gunnar; Kirchner, Eckhard
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**What Motivates and Discourages Designers to use Digital Sketching? Comparing its Use to Externalise Ideas Versus Communicating with External Stakeholders (140)**
Ranscombe, Charlie; Zhang, Wenwen
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16.00 - 16.15

Break

16.15 - 17.15

On-site & Online

## Closing Ceremony & Awards

Ola Isaksson, ICED21 Conference Chair

Join

17.15 - 17.45

Powered By Gathertown

## Farewell (Online Mingle Event)

Join

17.45 - 19.15

On-site

## Farewell Reception On Site

POWERED BY trippus

Chat with other participants

# FRIDAY 20TH

*Note that the times are in Central European Summer Time (CEST)*

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## Designing Innovation - Setting Design in Motion to Realise Industrial and Societal Transformation

| | | |
|---|---|---|
| 09.00 - 09.15 | On-site & Online | **Introduction**<br>Ola Isaksson<br>Join |
| 09.15 - 10.00 | On-site & Online | **Kick On Talks**<br>Martin Aston, Niina Aagaard, Tobias Larsson, Robin Teigland<br>Join |
| 09.50 - 10.00 | | Break |
| 10.00 - 12.00 | On-site & online | **Workshop in Groups**<br>Ola Isaksson, Anna Öhrwall Rönnbäck, Cecilia Berlin and Massimo Panarotto<br>Join |
| 12.00 - 13.00 | | Lunch |
| 13.00 - 13.30 | On-site & online | Reviewing Group Findings |
| 13.30 - 13.40 | | Break |
| 13.40 - 15.00 | On-site & Online | **Panel Discussion**<br>Invited panelists from industry, academia and public bodies<br>Join |
| 15.00 - 15.15 | On-site & Online | **Closing remarks and next step**<br>Join |
| 15.15 - 16.00 | | Coffee Break |
| 16.00 - 16.30 | On-site & online | **Design Society Advisory Board and Board of Management Meeting**<br>Tim McAloone, Design Society President<br>Join |