Siemens Research and Innovation Ecosystem
December 3-4, 2025 in Aachen & Eindhoven

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Future of AI-based Systems Engineering

MOVE FORWARD

Agenda & Info

co-hosted by EAISI TU/e, TU/e Eindhoven University of Technology, DIFFER, INNOVATION | RWTH Aachen University

https://siemens.com/future-of-ai-based-systems-engineering/

The Siemens Research and Innovation Ecosystem Conferences **sparks bold collaborations**, accelerate transformative ideas, and unite minds across industries and academia — all with one goal: to **shape a future** driven by sustainable technology and human ingenuity.

130+
Participants

35+
Companies

2 Full Days
(3 & 4 December)

6 Deep Dive
Tracks

Industrial Challenge
Pitches

Lab tours &
Startups

Where System Engineering becomes more applicable

Themes and Experiences

Digitalization and system engineering

- Digital twin-driven process enhancement
- Data-driven and machine learning integration – industrial foundation models

AI and data-driven engineering

- Enhancing E/E systems through AI
- Data-driven feedback for continuous improvement
- AI-driven engineering of systems – agentic AI

Model-based system engineering

- Transformative impact of digital modeling
- Design enhancement through AI techniques
- System optimization via simulations

Challenge the status-quo in industry

- Complex interdependencies, hardware-software integration
- Cross-disciplinary integration and global tech standards
- Scaling systems to meet tech advances

Physical lab experiences

- Machine Elements: Mechanical design and integration
- Automotive: Electric vehicles and simulators
- Electronic Devices: Semiconductor and system design

Collaborative Innovation

- Foster multidisciplinary teamwork
- Break down silos for breakthroughs
- Highlight transformative success stories

+ Challenging Deep Dives

- Innovations in the Model-based System Engineering Backbone
- Joining AI and Systems Engineering for Software Defined Products
- Chips in the System
- Advancing Engineering with AI Models
- Frontloading System Performance Validation and Optimization
- The Role of Data in System Engineering
- & many more

+ Keynotes

Georg Jacobs (RWTH)

Carlo van de Weijer (TU/e)

Patrick Fokke (Siemens)

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Future of AI-based Systems Engineering Conference

Day 1 & 2 | Overview

Day 1 at RWTH Aachen – December 3rd

13:30 **Check-In, Arrival**

14:00 **Welcome** *by Prof Matthias Wessling (RWTH) and Dr. Philipp Lill (Siemens)*
Keynote ***Unlocking the Value of MBSE for Engineers*** *by Prof Georg Jacobs (RWTH)*
Pitch Winner Team – ***Prompt2System Hackathon*** **–** *Student Team*

Lab tours
- Institute for Automotive Engineering
- Chair of Electronic Devices
- Institute for Machine Elements and Systems Engineering

Sessions
- Automotive
- Semiconductor
- MBSE

17:30 **Closing** *by Prof. Michael Riesener (RWTH)*
Networking, Dinner & Drinks

Day 2 at DIFFER TU/e Campus – December 4th

8:30 **Check-In, Arrival**

9:00 **Welcome Keynote** *by Prof Marco De Baar (TU/e), Patrick Fokke (Siemens) and Dr Steffen Lamparter (Siemens)*
Keynote ***The Future of agentic AI in System Engineering*** *by Dr Carlo van de Weijer (TU/e)*
Framework Keynote ***From systems down to chips*** *by Bart Placklé (imec) and Herbert Taucher (Siemens)*
Framework Keynote ***Challenges and Opportunities for successful MBSE implementation*** *by Dr Chantal Sinnwell (Siemens)*
Deep Dive Pitches (Session hosts)

Deep dives
- Innovations in the Model-based System Engineering Backbone
- Joining AI and Systems Engineering for Software Defined Products
- Chips in the system

12:45 **Lunch & Solutions Demonstrator (Research, Startups, Siemens)**

Deep dives
- Advancing Engineering with AI Models
- Frontloading System Performance Validation and Optimization
- The Role of Data in System Engineering

16:00 **Open fair, Networking & Follow-ups**
Lab visit - DIFFER

8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00

Please note that the agenda for the conference is not finalized yet, and there may be adjustments to the timing and sessions of the program.

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Future of AI-based Systems Engineering Conference at RWTH Aachen

Day 1 | Lab tours & visionary scientific info-discussion sessions

Day 1 at RWTH Aachen – December 3rd

14:00
15:00
16:00
17:00
18:00

Lab tours

14:00-16:30 Institute for Automotive Engineering

Discover the future of automotive and innovative mobility solutions at the labs Institute for Automotive Engineering (ika) at RWTH Aachen University. As a pioneer in automotive research, ika addresses aspects through the entire vehicle - from the concept and design phase to testing and validation - covering key areas such as electric mobility, vehicle dynamics, and autonomous driving.

Some highlights of the Labs:

- Electric Vehicle Research: Explore a range of research vehicles, including two battery-electric trucks equipped with Siemens pantographs for operation on electrified (catenary) road sections. These vehicles are part of the research project BEE – BEV goes eHighway, investigating integration the ERS technology into series production vehicles.
- Advanced Driving Simulators: Observe the seamless interaction between vehicle dynamics and driver-assistance systems in our state-of-the-art driving simulators. These immersive environments are used to test, develop, and optimize complex system behaviors under realistic driving conditions.

14:00-16:30 Chair of Electronic Devices

Explore the frontier of electronic system engineering at the labs of the Chair of Electronic Devices and AMO GmbH at RWTH Aachen University. State-of-the-art facilities are dedicated to advancing the development and integration of cutting-edge electronic devices, ensuring the highest standards of performance and reliability.

Some highlights of the Labs:

- Advanced Semiconductor Research: Dive into the world of nanoelectronics as we develop and test innovative semiconductor technologies, pushing the boundaries of system efficiency and speed.
- Integrated System Design: Experience the seamless integration of electronic components and systems in our labs, where we optimize system interactions for enhanced performance and sustainability.

14:00-16:30 Institute for Machine Elements and Systems Engineering

Discover the future of system engineering at the labs of the Institute for Machine Elements and Systems Engineering and the Center of System Engineering at RWTH Aachen University. State-of-the-art facilities are dedicated to advancing the design, integration, and optimization of complex mechanical and system engineering solutions, ensuring the highest standards of performance and reliability.

Some highlights of the Labs:

- Innovative Mechanical Design: Explore cutting-edge mechanical components and systems, where we develop and test advanced solutions for enhanced durability and efficiency.
- System Integration and Testing: Experience the seamless integration of mechanical, electronic, and software systems in our labs, where we optimize system interactions for unparalleled performance and sustainability.

Visionary scientific info-discussion session by RWTH and startups

16:45-17:30 Automotive

Advanced system engineering is transforming the automotive industry. AI and machine learning optimize vehicle design and production, enhancing safety and efficiency. Integration of IoT and autonomous driving technologies enables real-time monitoring and predictive maintenance, driving the industry towards smarter, more sustainable mobility solutions.

16:45-17:30 Semiconductor

Innovations in system engineering are revolutionizing the semiconductor industry. Advanced AI and machine learning models optimize chip design and manufacturing, enhancing performance and efficiency. Integration of IoT and edge computing enables real-time monitoring and predictive maintenance, driving the industry towards smarter, more sustainable solutions.

16:45-17:30 MBSE

Model-based system engineering is revolutionizing industries by integrating digital models and simulations throughout the product lifecycle. This approach enhances design, validation, and optimization, leading to more efficient, reliable, and innovative systems.

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Future of AI-based Systems Engineering Conference at TU Eindhoven

Day 2 | Challenging the status-quo in deep dives and jointly inspire the future

Day 2 at DIFFER TU/e Campus – December 4th

11:00
12:00
13:00
14:00
15:00
16:00

Deep dives

11:15-12:45 Innovations in the Model-based System Engineering Backbone

Dive into the forefront of model-based system engineering innovations in our workshop tailored for system design specialists. Engage with leading experts as they share best practices in requirement management and AI-enhanced system design techniques. Discuss the latest advancements in software verification and validation and uncover opportunities to shape the future of engineering with precision and intelligence.

- *Dr. Joerg Berroth, Managing Chief Engineer at MSE, RWTH Aachen | Managing Director at Center for Systems Engineering*
- *Dr. Gregor Höpfner, Head of Systems Engineering - Connected Systems, RWTH Aachen*
- *Dr. Johan Vanhuyse, Product Manager Simcenter MBSE, Siemens*

11:15-12:45 Joining AI and Systems Engineering for Software Defined Products

Interactive workshop focused on the cutting-edge advancements in systems engineering for software defined products. This session will feature insights on how AI is revolutionizing software defined product design, optimizing both efficiency and functionality. Explore with other experts the latest AI-driven techniques that are empowering engineers to tackle complex challenges in software defined products with unprecedented precision.

- *Asst. Prof. Yanja Dajsuren, Program Director of the PDEng Software Technology program, TU/e*
- *Hans-Juergen Mantsch, Director SDV & MBSE, Systems and Software Engineering, Siemens*

11:15-12:45 *Chips in the system*

Chip selection is frequently oversimplified, resulting in suboptimal systems that barely meet requirements, deadlines, and compromise long-term platform viability due to reliance on familiar components and disconnect between teams. Explore when traditional methods may be suitable and how to achieve a "global optimum." Discuss ideal chips selection or designing custom ones based on architecture-level functional requirements and emphasize establishing effective bidirectional communication channels between marketing, architects, and implementation teams.

- *Prof. Dr. Christoph Grimm, Chair Development of Cyber-Physical Systems, RPTU University Kaiserslautern-Landau*
- *Martin Barnasconi, Technical Director Model-Based Systems Engineering, NXP Semiconductors*
- *Thomas Heurung, Technical Director EMEA, Siemens*
- *Dr. Petri Solanti, Senior Field Application Engineer, Siemens*

12:45-14:15 Lunch and Solutions Demonstrator

Deep dives

14:15-15:45 Advancing Engineering with AI Models

Join an engaging workshop focused on the transformative applications of AI in systems engineering, where you'll explore how industrial foundation models provide a comprehensive framework for enhancing system design and innovating engineering solutions. Discuss latest techniques and collaborate with peers to harness these models, driving the future of AI in systems engineering and pushing the boundaries of innovation.

- *Assoc. Prof. Gijs Dubbelman, Head of Mobile Perception Systems Lab, TU/e*
- *Dr. Max Haberstroh, Associate Director at Accenture Industry X | Industrial Data Science, Accenture*
- *Bernhard Lang, Program Manager of Company Core Technology Data Analytics & AI, Siemens*

14:15-15:45 Frontloading System Performance Validation and Optimization

Join an insightful workshop focused on frontloading system performance validation and optimization through cutting-edge simulation workflows. Discuss advanced methods to enhance the precision of complex sensor, environment, and control systems, and optimize product performance with targeted strategies.

- *Assoc. Prof. Frank Naets, Chair Digital Twin for Smart and Sustainable Products, KU Leuven*
- *Peter Janssen, Business Process Architect Verification Management, ASML*
- *Dr. Katrien Wyckaert, Vice President Innovation at Simulation and Test Solutions, Siemens*
- *Dr. Son Tong, R&D Digital Twin & AI Engineering Manager, Siemens*
- *David Almer, Business Dev. System Simulation & MBSE, Siemens*

14:15-15:45 The Role of Data in System Engineering

Immerse yourself in a workshop exploring the pivotal role of data in system engineering. Discover advancements in real-time monitoring and optimization, as experts reveal how data-driven feedback loops enhance system performance.

- *Prof. Dr. Bernhard Rumpe, Chair of Software Engineering, RWTH Aachen*
- *Prof. Dr. Wil van de Aalst, Chair Process and Data Science, RWTH Aachen | Chief Scientist, Celonis*
- *Prof. Mark van den Brand, Chair Software Engineering and Technology ,TU/e*
- *Filipp Rosinski, Head of Integrated Process & Tool Landscape, Siemens Healthineers*
- *Dr. Cornel Klein, Project Manager Software Systems & Processes, Siemens*

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Future of AI-based Systems Engineering Conference

Day 1 at RWTH Aachen University - Conference Itinerary

Check-in and arrival

- We strongly recommend **checking in before 1:45 PM** on December 3rd. The conference will officially begin at 2:00 PM with the opening keynote.
- The Reception desk will be open for **check-in starting 1:30 PM**, providing time for you to arrive early and grab some snacks, drinks and coffee.

Food

- Snacks, drinks and coffee will be served on arrival. A networking dinner is planned after the visionary info-discussion sessions in the evening starting at 5:30 PM
- There are no food options around the venue.

Location

INC Innovation Center at RWTH Campus Melaten
Campus-Boulevard 30, 52074 Aachen, Germany

Public Transportation

There are several bus stops (**Aachen, Campus Melaten (Physikzentrum)**) at a few minutes walking distance. Plan your bus trip from Aachen railway station with **AVV**

Parking

Inside the **parking garage** next to the Production Engineering Cluster

Hotel recommendation

Innside by Melia Aachen City

Novotel Aachen City

Motel One Aachen City

MERCURE am Dom Aachen City

Hampton By Hilton Aachen Tivoli

Future of AI-based Systems Engineering Conference
Day 2 at DIFFER TU/e Campus - Conference Itinerary

Check-in and arrival

- We strongly recommend **checking in before 8:45 AM** on December 4th. The conference will officially begin at 9:00 AM with the opening keynote.
- The Reception desk will be open for **check-in starting 8:30 AM**, providing time for you to arrive early and grab some snacks, drinks and coffee.

Food

- Snacks, drinks and coffee will be served throughout the conference day.
- Lunch can be obtained between 1:00 PM and 2:00 PM
- There are no food options around the venue.

Location

Dutch Institute for Fundamental Energy Research (TU/e)
De Zaale 20, 5612 AJ Eindhoven, Netherlands

Public Transportation

There are several bus stops (**TU/e Ingang De Wielen**) at a few minutes walking distance. Plan your bus trip from Eindhoven railway station with **9292**

Parking

Parking on the **TU/e Campus , follow P11**

Hotel recommendation

The Social Hub

Holiday Inn

NH Hotel

The Match

Van der Valk

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Click here to find out more & register

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