

SAFECOMP Workshops

Tuesday, 6 September 2022

08:30 am Registration / Check in

09:00 am – 05:00 pm **Workshop program**

WAISE 2022

DECSoS 2022

ARCH 2022

SENSEI 2022

SASSUR 2022

USDAI 2022

07:00 pm **Social Event | Welcome Reception @Munich City Center / Vorhoelzer Forum TUM**
 Bus shuttle planned (from Munich-Garching to city center)

SAFECOMP Conference

Wednesday, 7 September 2022

08:00 am Registration and welcome coffee

08:45 am **Welcome**
Prof. Dr. habil. Mario Trapp [Fraunhofer IKS]

09:00 am **Keynote: CIAO (Complexity Intelligence Autonomy Openness) – 4 horsemen of Untrustworthy AI and ways to address them**
Professor Yiannis Papadopoulos [University of Hull]

10:00 am Coffee break

10:30 am **Joint Session – IMBSA-SAFECOMP**

SAFECOMP: Analysing the Safety of Decision-Making in Autonomous Systems | Matt Osborne, Richard Hawkins, John McDermid [University of York]

IMBSA: Component Fault and Deficiency Tree (CFDT): Combining functional safety and SOTIF Analysis | Marc Zeller [Siemens Technology]

SAFECOMP: BayesianSafety - an Open-Source package for Causality-Guided, Multi-Model Safety Analysis | Robert Maier, Jürgen Mottok [Ostbayerische Technische Hochschule Regensburg]

12:00 pm Lunch break

01:00 pm **Safety Analysis and Certification**

Safety Certification with the Open Source Microkernel-based Operating System Framework L4Re | Kai Lampka, Joel Thurlby [Elektrobit Automotive GmbH], Adam Lackorzynski, Marcus Haehnel [Kernkonzept GmbH]

Data-driven inference of fault tree models exploiting symmetry and modularization | Lisandro Arturo Jimenez-Roa, Matthias Volk, Marielle Stoelinga. [University of Twente]

02:00 pm Coffee break

02:30 pm **Assurance Cases**

ARACHNE: Automated Validation of Assurance Cases with Stochastic Contract Networks | Chanwook Oh, Nikhil Vijay Naik, Pierluigi Nuzzo [University of Southern California], Zamira Daw, Timothy E. Wang [Raytheon Technologies Research Center]

Automating Pattern Selection for Assurance Case Development of Cyber-Physical Systems | Shreyas Ramakrishna, Abhishek Dubey [Vanderbilt University], Hyunjee Jin, **Arun Ramamurthy** [Siemens Corporation Technology]

Generating Assurance Cases Using Workflow+ Models | Nicholas Annable, Thomas Chiang, Mark Lawford, Richard Paige, Alan Wassyng [McMaster University]

Uncertainty elicitation and propagation in GSN models of assurance cases | Yassir Idmessaoud, Jérémie Guiochet [LAAS-CNRS], Didier Dubois [IRIT]

04:30 pm Coffee break

05:00 pm **Panel** “Safer autonomous systems”

05:45 pm End of the day

07:00 pm **Social Event | Guided Munich City Tour**
 (limited seats for registered participants, separate email 2 weeks before)

SAFECOMP Conference

Thursday, 8 September 2022

08:00 am Registration and welcome coffee

09:00 am **Keynote: Dr. Ignacio Alvarez** [Intel Labs]

10:00 am Coffee break

10:30 am **Fault Detection, Monitoring and Tolerance**

Impact of Machine Learning on Safety Monitors | Francesco Terrosi, Andrea Bondavalli [University of Florence], Lorenzo Strigini [City University]

Comprehensive Analysis of Software-Based Fault Tolerance with Arithmetic Coding for Performant Encoding of Integer Calculations | Marc Fischer, Oliver Riedel, Armin Lechler [University of Stuttgart]

STPA-driven Multilevel Runtime Monitoring for In-time Hazard Detection | Smitha Gautham, Alexander Will, Athira Varma Jayakumar, Carl Elks [Virginia Commonwealth University], Georgios Bakirtzis [The University of Texas at Austin]

12:00 pm Lunch break

01:00 pm **EWICS**: Updates of the EWICS association and its working groups01:30 pm **Security and Safety**

Proposal of Cybersecurity and Safety co-engineering approaches on Cyber-Physical Systems | Pierre-Marie Bajan, Martin Boyer, Anouk Dubois, Jérôme Letailleux, Kevin Mantissa, **Jeremy Sobieraj**, Mohamed Tlig [IRT system]

On the Feasibility and Performance of Secure OPC UA Communication with IIoT Devices | Florian Kohnhäuser, Nicolas Coppik, Francisco Mendoza [ABB Corporate Research Center], Ankita Kumari [Technical University Munich]

02:30 pm Coffee break

03:00 pm **Fault Injection**

SailFAIL: Model-Derived Simulation-Assisted ISA-Level Fault-Injection Platforms | Christian Dietrich, Yannick Loeck [Technische Universität Hamburg], Malte Bargholz, Marcel Budoj, Luca Nedaskowskij, Daniel Lohmann [Leibniz University Hanover]

Assessing the quality of fault injection strategies on hardware accelerator | Iban Guinebert, Kevin Delmas, Claire Pagetti [ONERA], Andres Barrilado, Franck Galtié [NXP]

Assessment of the impact of U-space faulty conditions on drone conflict rate | Anamta Khan, Naghmeh Ivaki, Henrique Madeira [University of Coimbra], Pablo Morcillo-Pallarés, Carlos A. Chuquitarco Jiménez, Juan Vicente Balbastre Tejedor [Universitat Politècnica de València]

ACTOR: Accelerating Fault Injection Campaigns using Timeout Detection based on Autocorrelation | Tim-Marek Thomas, Oskar Pusz, Daniel Lohmann [Leibniz Universität Hannover]
Christian Dietrich [Technische Universität Hamburg]

05:00 pm End of the day

07:00 pm **Social Event | Conference Dinner @ Weihenstephan brewery**
Bus shuttle planned (from Munich-Garching to Freising and return)

SAFECOMP Conference

Friday, 9 September 2022

08:00 am Registration and welcome coffee

09:00 am **Keynote: Safety of AI: how do you argue on safety when AI empowers mobility? | Dr. Corina Apachite** [Continental]

10:00 am Coffee break

10:15 am **Object Detection and Perception**

Formally Compensating Performance Limitations for Imprecise 2D Object Detection | Tobias Schuster, Emmanouil Seferis, Simon Burton, Chih-Hong Cheng, [Fraunhofer IKS]

Architectural patterns for handling runtime uncertainty of data-driven models in safety-critical perception | Janek Groß, Rasmus Adler, Michael Kläs, Jan Reich, Lisa Jöckel [Fraunhofer IESE], Roman Gansch [Robert Bosch GmbH]

Hardware faults that matter: Understanding and estimating the safety impact of hardware faults on object detection DNNs | Qutub Syed Sha, Florian Geissler, Yang Peng, Ralf Graefe, Michael Paulitsch [Intel Labs], Gereon Hinz, Alois Knoll [Technical University of Munich]

Application of STPA for the Elicitation of Safety Requirements for a Machine Learning based Perception Component in Automotive | Esra Acar Celik, Henrik J. Putzer [fortiss GmbH], Carmen Carlan [Edge Case Research GmbH], Asim Abdulkhaleq [Robert Bosch GmbH], Fridolin Bauer [BMW AG], Martin Schels [Continental AG]

12:15 pm Lunch break

01:15 pm **Testing**

Exploring a Maximal Number of Relevant Obstacles for Testing UAVs | Tabea Schmidt, Florian Hauer, Alexander Pretschner [Technical University of Munich]

Data-driven Assessment of Parameterized Scenarios for Autonomous Vehicles | Nicola Kolb, Florian Hauer, Alexander Pretschner [Technical University of Munich], Mojdeh Golagha, fortiss GmbH

Optimising the reliability that can be claimed for a software-based system based on failure-free tests of its components | Peter Bishop, Andrey Povyakalo [City, University of London]

02:45 pm **Wrap up and announcement 2023**