INTRODUCTION TO EWICS TC 7
SAFECOMP 2023

Mario Trapp
EWICS chair
mario.trapp@ewics.org
EWICS TC 7
European Workshop on Industrial Computer Systems Reliability, Safety and Security

OUR MISSION - SINCE 1974

"To promote the economical and efficient realization of programmable industrial systems through education, information exchange, and the development of standards and guidelines".

SAFECOMP® - SINCE 1979

Our primary platform for bringing experts together, information exchange and education.
Current Structure | Contacts

- EWICS
  - Chair: Mario Trapp | Fraunhofer IKS, TUM | mario.trapp@ewics.org

- current EWICS TC 7 – subgroups
  - Safety of Medical Devices | Uwe Becker (Dräger) | uwe.becker@ewics.org
  - Security of Safety-Critical Systems | Uwe Becker (Dräger) | uwe.becker@ewics.org
  - Autonomous Systems | Elena Troubytsina (KTH) | elena.troubitsyna@ewics.org
  - Maintenance of Diverse Systems | Erwin Schoitsch (AIT) | erwin.schoitsch@ewics.org
SG SEC: Security of Safety-Critical Systems

- Objective of SG SEC is to provide guidance
  - to purchasers and operators concerning the specification of security requirements;
  - to suppliers on how to satisfy the security requirements, while maintaining project security during the project lifecycle;
  - to users on security management in a safety-critical industrial context.

- Contribution to Standardization
  - contribution to IEC 62443 (via EWICS members in national committee), especially concerning Protection Profiles
SG MeD: Safety of Medical Devices

- Objective of SG MeD is to provide guidance to
  - the development of medical programmable systems such as to ensure both functional integrity and operational safety.

- Contribution to Standardization
  SG MeD contributed to
  - International document IEC TR 60601-4-5 (2021)
  - by adapting IEC 62443-4-2 to the domain of medical devices

- Joint work of SG MeD and SG SEC
  - Safety-aware Protection Profiles (SaPP)
SG AS/SoS: Autonomous Systems and Systems-of-Systems

- Chair: Elena Troubitsyna  
  KTH – Royal Institute of Technology, Sweden  
  elenatro@kth.se

- We focus on:
  - Analysing challenges in ensuring safety of autonomous systems and systems-of-systems
  - Discussing recent research and practical results in engineering safety-critical autonomous systems
  - Creating a research roadmap
  - Organisation community-building events
SG AS/SoS: Autonomous Systems and Systems-of-Systems

- Past and future events:
  - Spring 2018 – Workshop on safe autonomous systems (30+ participants) in Munich organised by Mario Trapp.
  - April 2024: Dagstuhl seminar Engineering safe autonomous systems
    Organised by Philip Koopman (CMU), John McDermid (U.of York), Mario Trapp (TU Munich and Fraunhofer), Elena Troubitsyna (KTH) and Ignacio Alvarez (Intel)
  - Meetings (virtual and hybrid) three times a year open for everyone
SG MDS: Maintenance of Diverse Systems

- **Mission Statement:**
  - provide support in upgrading, maintenance and adaptation (modification, enhancement) of critical systems without violating the existing redundancy/diversity properties
  - Keep long-living systems operational and safe
  - Including changes of requirements during system life time, e.g. security requirements, updated functional requirements

- **Current activities for Standardization enabled/supported:**
  - IEC SC 65E – [IEC 63270 ED1](#) Industrial automation equipment and systems - Predictive Maintenance (start enabled by joining, now CCDV, to be published 2024-10)
  - Automotive ISO TC22 SC32 WG08 - ISO TR 9839 - Application of predictive maintenance to hardware with ISO 26262-5 (now published)
SG MDS: Maintenance of Diverse Systems

Design aspects
- fault tolerance architectures
- homogeneous redundancy and diversity

- Impact of safety culture (human factors)
  - on management of operation and maintenance

- Impact of new technologies and standards
  - AI, smart manufacturing, connectivity, partial autonomy
  - Now added: Predictive Maintenance (see Standards)

- Redundancy and diversity metrics
- Experience reports
  - e.g. from railway interlocking systems

STATUS: Editing/Completion of Final Draft ahead
The Future

**The Home of Safety**
A non-political, continuous, confidential, technology-focused exchange platform for safety professionals from industry and academia.

**The Voice of Safety**
A strong, unified voice of the united community that is heard and recognized by policy makers, decision makers, academia, and young professionals.

**The School of Safety**
A community that educates young professionals, connects them with senior professionals, and helps them network across countries and industries.

SafeComp®
The Future

The Home of Safety
- Expert Meetup
- Open Workshops
- Working Groups

The Voice of Safety
A strong, unified voice of the united community that is heard and recognized by policy makers, decision makers, academia, and young professionals.

The School of Safety
A community that educates young professionals, connects them with senior professionals, and helps them network across countries and industries.
The Future

The Home of Safety
- Expert Meetup
- Open Workshops
- Working Groups

The Voice of Safety
- Annual Roadmaps
- Decision-Maker Roundtables
- PR campaigns

The School of Safety
A community that educates young professionals, connects them with senior professionals, and helps them network across countries and academia, and young professionals.

SafeComp®
The Future

The Home of Safety
- Expert Meetup
- Open Workshops
- Working Groups

The Voice of Safety
- Annual Roadmaps
- Decision-Maker Roundtables
- PR campaigns

The School of Safety
- Summer Schools
- Training Platform
- Student Exchange

SafeComp®

A strong, unified voice of the united community that is heard and recognized by policy makers, decision makers, academia, and young professionals.
The Future

A strong, unified voice of the united community that is heard and recognized by policy makers, decision makers, academia, and young professionals.

- Expert Meetup
- Open Workshops
- Working Groups
- Annual Roadmaps
- Decision-Maker Roundtables
- PR campaigns
- Summer Schools
- Training Platform
- Student Exchange

Join a great community and Shape the Future of Safety

- No membership required
- No fees
- Open to all safety professionals (young, old, industry, academia, …)
How to participate

Join a great community and Shape the Future of Safety

It doesn’t need more than a message

- No membership required
- No fees
- Open to all safety professionals (young, old, industry, academia, ...)

SafeComp®

A strong, unified voice of the united community that is heard and recognized by policy makers, decision makers, academia, and young professionals.
Contact

Prof. Dr.-Ing. habil. Mario Trapp
mario.trapp@ewics.org

TUM School of Computation, Information, and Technology CIT
Chair of Engineering Resilient Cognitive Systems