

Christoph Schmittner

Donau-City-Straße 1
1220 Vienna
Austria

+43 664 88256009

✉ christoph.schmittner@ait.ac.at



Current Research

My current research is focused on safety&security co-engineering, mainly in the automotive and industrial domain. Information security risks are a rising concern for software-based mission-critical systems. Increasing system complexity and connectivity leads to susceptibility against security threats.

Education

- 2014–present **Ph.D. in Computer Engineering**, *Vienna University of Technology*.
Model based safety&security co-engineering
- 2011–2013 **M.Sc. in Electrical Engineering**, *Ostbayerische Technische Hochschule Regensburg*.
Applied Research in Engineering Science, System and Software Engineering
- 2006–2011 **B.Sc. in Computer Science and Mathematics**, *Ostbayerische Technische Hochschule Regensburg*.
Technical Computer Science

Master thesis

- title *Safety Engineering am Beispiel eines Airbagsystems*
- supervisors Prof. Georg Scharfenberg, Prof. Dr. Jürgen Mottok
- description Safety Concept for an airbag system and research on different approaches for integrating the functional safety engineering with model based system engineering

Publications

- 2016 **Limitation and Improvement of STPA-Sec for Safety and Security Co-analysis**, *Christoph Schmittner, Zhendong Ma and Peter Puschner*, International Conference on Computer Safety, Reliability, and Security, P. 195-209.
- 2016 **Using SAE J3061 for Automotive Security Requirement Engineering**, *Christoph Schmittner, Zhendong Ma, Carolina Reyes, Oliver Dillinger and Peter Puschner*, International Conference on Computer Safety, Reliability, and Security, P. 157 - 170.

- 2016 **The need for safety and cyber-security co-engineering and standardization for highly automated automotive vehicles**, *Erwin Schoitsch, Christoph Schmittner, Zhendong Ma and Thomas Gruber*, Advanced Microsystems for Automotive Applications 2015.
- 2015 **Towards a Framework for Alignment Between Automotive Safety and Security Standards**, *Christoph Schmittner, Zhendong Ma*, Computer Safety, Reliability, and Security.
- 2015 **Security Analysis of Urban Railway Systems: The Need for a Cyber-Physical Perspective**, *Binbin Chen, Christoph Schmittner, Zhendong Ma, William G Temple, Xinshu Dong, Douglas L Jones, William H Sanders*, Computer Safety, Reliability, and Security.
- 2015 **Combined Safety and Security Development Lifecycle**, *Christoph Schmittner, Zhendong Ma and Erwin Schoitsch*, 13th IEEE International Conference on Industrial Informatics (INDIN).
- 2015 **A Case Study of FMVEA and CHASSIS as Safety and Security Co-Analysis Method for Automotive Cyber-physical Systems**, *Christoph Schmittner, Zhendong Ma, Erwin Schoitsch, Thomas Gruber*, 1st Cyber-Physical System Security Workshop (CPSS 2015) at 10th ACM Symposium on Information, Computer and Communications Security (ASIACCS).
- 2014 **Standardization Challenges for Safety and Security of Connected, Automated and Intelligent Vehicles**, *Christoph Schmittner, Zhendong Ma, and Thomas Gruber*, 3rd International Conference on Connected Vehicles & Expo (ICCVE).
- 2014 **FMVEA for safety and security analysis of intelligent and cooperative vehicles**, *Christoph Schmittner, Zhendong Ma, and Paul Smith*, 1st International workshop on the Integration of Safety and Security Engineering (ISSE).
- 2014 **Security Application of Failure Mode and Effect Analysis (FMEA)**, *Christoph Schmittner, Thomas Gruber, Peter Puschner and Erwin Schoitsch*, The 33rd International Conference on Computer Safety, Reliability and Security (SafeComp).
- 2012 **Analysis of the Functional and Electrical Safety of Charging Stations**, *Christoph Schmittner, Georg Scharfenberg, Jürgen Mottok, Stefan Strassmeier, Thomas Limmer*, Applied Research Conference 2012 (ARC 2012).

Professional Affiliations

- IEC Expert in Austrian mirror committee for IEC TC 56 Dependability
 Member of IEC TC65/WG20 "Industrial-process measurement, control and automation– Framework to bridge the requirements for safety and security
 Member of IEC TC65/AHG2 for "Reliability of Automation Devices and Systems"
 Member of IEC TC65/AHG3 "Smart Manufacturing Framework and System Architecture"
- ISO Expert in Austrian mirror committee for ISO26262
 Member of Cybersecurity and Safety task group for ISO26262:2018

Member of Joint ISO/TC 22/SC 32 - SAE WG: Automotive security engineering

Work experience

2017–present **Scientist**, *Austrian Institute of Technology, Digital Safety & Security, Safe and Autonomous Systems*, Vienna.

Research and Developments in the field of safety&security co-engineering.

Projects:

- SemI40: Industry4.0 for semiconductor manufacturing;
 - Development of solutions for increased safety, security and robustness against cyber-attacks in vintage production environment
- IoSense: Safe and secure smart sensor systems;
- AMASS: Multi-concern (safety&security&reliability) assurance for automotive and industrial IoT and CPS systems;
- SCRIPT: development of safety&security concept and architecture for a wireless communication gateway for vehicle;

2014–2016 **Research Fellow**, *Austrian Institute of Technology, Digital Safety & Security, Safe and Autonomous Systems*, Vienna.

PhD researcher in the field of safety&security co-engineering.

Projects:

- AEROCEPTOR: safety analysis for remotely piloted aircrafts;
- CARONTE: identification of future risks for land transportation;
- ARROWHEAD: safety&security analysis for connected industrial systems;
- EMC2: safety&security co-engineering for multi-core systems with mixed criticality;
 - safety&security analysis for automotive powertrains
 - verification&validation techniques for safety&security

2013–2014 **Research Assistant**, *LaS³, Laboratory for Safe and Secure Systems, Ostbayerische Technische Hochschule Regensburg*, Regensburg.

Participant in the funded project MEHREN (Multimotor Elektrofahrzeug mit Höchster Raum- und Energieeffizienz und kompromissloser Fahrsicherheit).

- Functional Safety Concept for a electrical vehicle with multiple wheel hub motors and skid steering.
- Consortium: Ford Forschungszentrums Aachen (FFA), Schaeffler, Continental Automotive GmbH, RWTH Aachen and OTH Regensburg.

2011–2013 **Project manager**, *IT-Inkubator Ostbayern GmbH*, Regensburg.

Project Manager for iLEM (intelligente Ladetechnik in der E-Mobilität) (Funded by the German Federal Ministry for Economic Affairs and Energy). Proposal coordinator for the funded projects "SCC - Smart Charging Community" and "Framework für Ladestationen".

- Safety engineering for electrical vehicles
- Security engineering for charging infrastructures

2009–2011 **Working Student**, *Osram Opto Semiconductors*, Regensburg / San Jose.

Application engineering for solid state lighting systems for automotive and building applications.

- wireless control systems for solid state lighting systems
- software and hardware development
- thermal simulations and studies

Languages

German native speaker

English fluent

Certification

- Project management training
- Presentation and moderation training
- Automotive Summer School 2013 / 2012 - model-based development / multi core systems
- Crisam Foundation training - risk management
- Drive-E-Akademie 2012
- Summer school information security 2012