



# CATALIN TRICULESCU

System and Functional Safety professional (10+ years exp)

## DETAILS

### Contacts

Bucharest, Romania

[catalin.triculescu@gmail.com](mailto:catalin.triculescu@gmail.com)

+40764901827

### Driving licence

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### Nationality

Romanian

## PROFILE

As a System Engineer and Functional Safety professional with over a decade of experience in the automotive industry, I have a proven track record of successfully delivering complex projects from concept to production. I have extensive experience in developing safety-critical systems for the automotive domain and ensuring compliance with industry safety standards such as ISO 26262, ISO 13849, ISO 5083, ISO 61508 as well A-SPICE process.

Overall, I am a results-driven professional with a passion for developing cutting-edge technologies that meet the highest safety standards. I am dedicated to delivering exceptional value to my clients, stakeholders and thrive in dynamic and challenging environments.

## EMPLOYMENT HISTORY

### System Safety Expert, AstaZero at Research Institute of Sweden, Gothenburg, Sweden (remote)

JANUARY 2025 – MAY 2025

*Autonomous Vehicles | SAE L3-L4 | ISO 5083 | ISO 13849 | System Engineering*

Defining safety concepts and validation strategies for technical equipment used in the testing of autonomous vehicles. Responsibilities include hazard analysis, system safety assessments, and ensuring compliance with relevant safety standards to support the safe and reliable operation of advanced testing environments.

### Product Safety Engineer, Continental AG, Markdorf, Germany (remote)

SEPTEMBER 2022 – JANUARY 2025

*High-Performance Computing Platform with Gateway Capabilities | ASIL B(D) Compliance | German OEM*

#### Key Responsibilities & Achievements:

- Supported the SW development of safety concepts and ensuring compliance with functional safety requirements.
- Worked with **Aurix TC39x** and **Renesas RL78** microcontrollers, implementing build-in self-tests and safety mechanisms to achieve **SPFM** and **LFM** targets verified via **FMEDA** at uC level and system level.
- Configured and reviewed **TLF35584 SBC**, optimising safety-related configuration.
- Ensured build integrity by reviewing compiler settings to align with qualified compiler options.
- Defined **low-level safety functions** to support overall system safety goals.
- Reviewed and configured **Watchdog Manager**, focusing on **Alive Supervision and Deadline Monitoring**.
- Configured and validated **CAN E2E protection** mechanisms to achieve FHTI at system level.
- Conducted **Impact Analysis** and analysed **Problem Reports** to assess safety-related issues.
- Developed and compiled **Safety Case Reports** to document compliance and safety measures.

## Functional Safety Expert, Volvo Construction Equipment, Braas, Sweden (remote) - part time

DECEMBER 2022 – FEBRUARY 2024

Fully Electric, Autonomous Vehicles | ISO 26262 & ISO 13849 Compliance

### Key Responsibilities & Achievements:

- Developed and implemented **functional safety processes and methodologies** for fully electric autonomous transport systems, ensuring compliance with **ISO 26262, ISO 13849**, and industry-specific safety standards.
- Conducted **hazard analysis and risk assessments (HARA)** and defined safety measures to mitigate identified risks.
- Performed **fault tree analysis (FTA)** for safety functions
- Collaborated with **cross-functional teams** to integrate functional safety requirements throughout the development life-cycle.
- Reviewed and approved **safety documentation**, including **safety plans, safety cases, safety analyses, and compliance files**.
- Delivered **training sessions** on functional safety principles, ensuring team-wide understanding of safety processes and best practices.
- Maintained and enforced **functional safety standards and guidelines**, ensuring alignment with relevant industry regulations.

## Functional Safety Manager, GKN Automotive, Lohmar, Germany

OCTOBER 2018 – JANUARY 2023

AWD/eDrive Systems | ASIL D Compliance | German OEM

### Key Responsibilities & Achievements:

- Successfully supported **AWD/eDrive engineering teams** in implementing **Functional Safety** according to **ISO 26262** for projects up to **ASIL D**.
- Led **Functional Safety Management (FSM)**, including supplier safety coordination, ensuring **technical analysis of hazardous events**, implementation of safety mechanisms, and verification aligned with project milestones.
- Ensured compliance with **testing, timing, A-SPICE, and ISO standards**, guaranteeing the integrity of planned work products.
- Collaborated with **Functional Safety Engineers** to define, implement, and verify **Technical Safety Requirements and Technical Safety Concepts**.
- Designed **safety mechanisms at system and software levels**, including:
  - **AURIX TC23x** internal hardware safety mechanisms
  - **Voltage monitoring concepts**
  - **ELMOS driver monitoring**
  - **Startup microcontroller test**
  - **SafePath testing**
- Analyzed **third-party safety manuals** (AURIX TC23x, TLF35584, Vector OS, AURIX SafeTlib) to extract and integrate relevant requirements into AWD program specifications.
- Developed **monitoring concepts** based on **Safety Goals and FTTI allocation** within system architecture.
- Performed **AURIX FMEDA**, considering system-level safety mechanisms to recalculate **SPFM and LFM** based on failure-in-time (FIT) rates.
- Executed **SW Safety Analysis**, including interface analysis, safe path assessments, and evaluation of errors introduced during requirement specifications.
- Provided **Functional Safety Recommendations** to **Program Management** for production releases and approval processes.
- Developed and maintained a **progressive safety checklist** based on the **Usage Restriction Level** (e.g., trained driver, proving grounds, public road deployment) for each system release, ensuring all safety mechanisms were validated before deployment.

## System Engineer, HELLA KGaA Hueck & Co, Craiova, Romania

MARCH 2018 – OCTOBER 2018

*Platform Development | Cost Optimization | ASIL B Compliance*

### Project Scope:

Led the development of the **3rd generation Trailer Tow Module**, featuring **enhanced functionalities and an updated architecture** to serve as a **scalable platform for multiple customers**. The project successfully **reduced costs and improved time-to-market** while maintaining compliance with industry standards.

### Key Responsibilities & Achievements:

- Analyzed and refined customer requirements into well-defined system requirements to ensure clarity and feasibility.
- Conducted system-level architectural design and performed technical reviews to validate design decisions.
- Executed safety analyses and risk assessments, contributing to the safety case and ensuring functional reliability.
- Ensured compliance with ISO/IEC standards and relevant industry regulations.
- Established requirement traceability and test coverage, ensuring comprehensive validation of the safety case.

## Functional Safety & Vehicle Motion Engineer, NEVS, Trollhättan, Sweden

OCTOBER 2016 – FEBRUARY 2018

*Electric Vehicle Safety | Fault Management | ISO 26262 | Supplier Coordination*

### Project Scope:

Worked within the **Vehicle Motion department** at **NEVS**, overseeing all aspects of **vehicle motion and energy management** to ensure the development of a safe and reliable electric vehicle. Focused on supplier coordination, ensuring compliance with requirements, timelines, and seamless component integration.

### Key Responsibilities & Achievements:

- Defined a fault management strategy at the vehicle level, including fault mitigation measures to enhance system reliability.
- Conducted system-level safety mechanism analysis, allocating mitigation strategies to architectural elements.
- Analyzed Active Short Circuit (HV Battery) and back EMF effects at the vehicle level, considering battery state-of-charge (SOC).
- Defined safe states for architectural elements, ensuring proper handling of critical failures.
- Developed a warning and degradation concept for vehicle motion, improving overall safety and performance.
- Supported Functional Safety Concept and System Design, performing safety analyses in compliance with ISO 26262.
- Managed supplier interactions, ensuring adherence to fault management requirements and seamless integration into the overall system.
- Improved internal team coordination and task management by implementing Agile methodologies, enhancing efficiency and collaboration.

## Functional Safety Manager, HELLA KGaA Hueck & Co, Craiova

AUGUST 2015 – OCTOBER 2016

*ISO 26262 Compliance | ASIL B | Safety Architecture | German OEMs*

### Project Scope:

Led **Functional Safety Management** for the **Trailer Tow Module** project, ensuring **ISO 26262 compliance**. The project involved developing an **ECU supporting trailer light control and hitch control**, rated **ASIL B**. Designed as a **platform solution**, the product was successfully delivered to **three leading German OEMs**.

### Key Responsibilities & Achievements:

- Provided support during the **acquisition phase for new customers**, developing **preliminary safety architectures** and cost estimations.
- Defined and specified **safety requirements** and **safety concepts** to ensure system reliability.
- Implemented **Renesas RH850** and **UJA11xxx watchdog safety mechanisms**.
- Refined **safety requirements** into **software safety mechanisms** and **hardware-allocated requirements**.
- Developed **program flow monitoring**, **RAM/ROM/MPU tests**, and **voltage monitoring concepts** for safety assurance.
- Designed **freedom from interference mechanisms** at the software level
- Conducted and supported **safety analyses** at the **system and software levels**, including:
  - **Failure Tree Analysis (FTA)** at **ECU level**, tracing **failure modes** and allocating safety mechanisms to meet **SPFM** and **LFM** targets.
  - **Software architecture safety analysis** to reinforce the **safety concept**.
- Acted as the **customer interface**, supporting safety architecture discussions and the **safety case development**.

#### Additional Contributions:

- Supported the **Software Product Platform** framework for **AUTOSAR SW-C development** using the **SEooC approach**.
- Provided **ISO 26262 compliance training and guidance** to the development team.
- Ensured **A-SPICE 2.0 compliance (ENG2 – ENG8)** for **Safe IO modules**.

#### SW Engineer, HELLA KGaA Hueck & Co, Craiova

MARCH 2013 – AUGUST 2015

*AUTOSAR | MISRA | ASIL B Compliance | German OEM*

Contributed to the development of a **high-end Body Control Module (BCM)** for a top German OEM, managing key functionalities such as interior & exterior lighting, trunk lock, seat heating, and gateway operations. The exterior lighting played a critical role in driver and passenger safety, leading to an **ASIL B** safety rating.

#### Key Responsibilities & Achievements:

- Developed and implemented **software modules in ANSI C**, adhering to **AUTOSAR** and **MISRA** compliance.
- Designed and implemented **safety modules for current consumption monitoring of exterior lights** using **ADC via DMA measurements**, optimising runtime efficiency.
- Implemented **safety measures** in alignment with the **Technical Safety Concept**, including:
  - **CoreTest, MPU Test, ECC Test, RAM/ROM tests** for system integrity.
- Integrated **third-party software** following **functional safety guidelines**, including:
  - **Vector OS for Renesas RH850** – conducted safety manual analysis, configuration, and verification using **ARXML compare to ECU configuration read-back**
  - **MPU/Memory Layout configuration**, ensuring proper SW-C safety level allocation and supervisor/user mode separation.
  - **Trusted/Non-Trusted function calls** with runtime optimisation for improved efficiency.
- Configured **TTTech Watchdog Manager (WdgM)**, defining **monitoring concepts** including:
  - **Alive monitoring, program flow monitoring, and deadline monitoring**.
- Developed and tested **UJA1169xx watchdog configuration** and defined a **watchdog test concept**.
- Managed **System Stack and IO Stack**, contributing to **software architecture design**.
- Conducted **T1 Gliwa runtime measurements** and performed **code optimisations** to enhance system performance.

#### EDUCATION

**Master's degree System engineering, Faculty of Automatics, Computers and Electronics, Craiova**

OCTOBER 2014 – JULY 2016

**Computer science bachelor's degree, Faculty of Automatics, Computers and Electronics, Craiova**

OCTOBER 2007 – JULY 2011

## LINKS

[cxTech.me](http://cxTech.me)

## LANGUAGES

English

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French

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Romanian

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## SKILLS

ISO 26262:2018

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IEC 61025:2006

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ISO 12100:2010

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Embedded Systems

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System Engineering

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Communication Skills

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IEC 61508:2010

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ISO 13849:2015

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ISO 5083:2025

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AUTOSAR Architecture

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Management Skills

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ASPICE

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## COURSES AND TRAININGS

- 2015/06 - Presentation skills
- 2015/07 - Communication skills
- 2015/10 - Functional Safety for Safety Managers
- 2017/10 - Hazardous Voltage Green + Yellow Level
- 2018/05 - System Engineering workshop - Vector Austria
- 2018/06 - Functional Safety for System Engineers
- 2024/04 - Introduction to ISO/TS 5083:2025 Road vehicles – Safety for automated driving systems – Design, verification and validation

## EXTRA-CURRICULAR ACTIVITIES

### Project Manager, HELLA KGaA Hueck & Co, Craiova

FEBRUARY 2015 – JUNE 2015

This project enhanced the collaboration between the University of Automatics, Computers and Electronics and HELLA Craiova. I was in charge of putting together and managing a team of 14 colleagues to present and introduce the students into basic concepts of embedded programming with emphasis on the practical side.

Achievements and responsibilities:

- Planned and detailed the workshop activities
- Managed and coached the students that applied to our program
- The majority of the students have successfully completed this activity of which 15 students were granted HELLA internships

## HOBBIES

Hiking, Skiing, Running

## JOB RELATED SKILLS

### Functional Safety trainer for the following modules

- Introduction to Functional Safety, ISO26262
- Functional Safety for Software Development
- Functional Safety and AUTOSAR: Vector solution

### Tool landscape

**Requirements management:** SystemWeaver, IBM DOORS, IMS RV&S Integrity

**File versioning:** Windchill, IMS Integrity, GIT, Subversion, Microsoft solution

**Modeling Tools:** Enterprise Architect, Rational Rhapsody, Windchill Modeler

**Vector Tools:** CANoe, CANalyzer, DaVinci Configurator, DaVinci Developer, CANdela

**Coding Tools:** Eclipse, iSYSTEM Debugging Environment, T1 Gliwa

**Safety Tools:** medini Analysis, IQ RM APIS (FMEA Tool), FTA Tool, SISTEMA

MS Office Tool suite

Atlassian jira or similar Agile tools

A-SPICE 3.1 Stages process description

SW Tool qualification as per ISO26262

Stages process development from methodpark

### Known Standards

**IEC 61508:2010** Functional safety of electrical/electronic/programmable electronic safety-related systems

**ISO 26262:2018** Road vehicles – Functional safety

**ISO/TS 5083:2025** Road vehicles – Safety for automated driving systems – Design, verification and validation

**ISO 12100:2010** Safety of machinery – General principles for design – Risk assessment and risk reduction

**ISO 13849:2015** Safety of machinery – Safety-related parts of control systems

**ISO 13850:2015** Safety of machinery – Emergency stop function – Principles for design

**IEC 61025:2006** Fault tree analysis (FTA)

**IEC 60812:2018** Failure modes and effects analysis (FMEA)