



## WORK EXPERIENCE

 **ZF GROUP** – TIMISOARA, ROMANIA

**CYBERSECURITY ENGINEER** – 02/2022 – CURRENT

### [Cybersecurity software coordinator]

- ensure traceability and verifiability of software requirements
- support cybersecurity engineering process
- guide software activities to fulfill customer expectations
- analyze new vulnerability and error reports

### [Cybersecurity Solution for Private CAN bus in ASILD ECUs]

- design, requirements, testing, implementation of efficient solution for securing redundant private CAN buses, i.e., authenticate bus traffic, manage session keys, detect runtime errors, etc.
- AUTOSAR Classic environment
- apply secure coding practices

### [Development of Access Control SW in AUTOSAR Adaptive]

- design, development and testing of cybersecurity SW modules in Linux/QNX environment (technologies: C++, Conan, Azure DevOps, Git )
- review cybersecurity requirements
- integration of Vector Adaptive AUTOSAR
- unit testing (technology: GoogleTest framework)
- static analysis (technology: Axivion)

### [Other topics]

- integration / development of cybersecurity SW-Cs in AUTOSAR classic environment

 **HELLA ROMANIA S.R.L.** – TIMIŞOARA, ROMANIA

**SOFTWARE ENGINEER** – 08/2019 – 02/2022

### [Main responsibilities]

- configuration/integration of basic software modules (AUTOSAR) using Vector's toolchain, experience with Crypto, Diagnostics, System, Memory, Communication (CAN) stacks, RTE, Os
- ownership over multiple cybersecurity SW-Cs, responsible for understanding requirements, integration, adapter implementations, configuration
- contribute to architectural decisions related to cybersecurity components
- multi-core debug Aurix/Hsm, experience with winIDEA
- perform quality processes, e.g., Qac, Unit tests, Design, experience with Rhapsody

### [Other topics]

- support requirements engineering for cybersecurity features
- support integration/system test, experience with CANoe
- develop python scripts for task automation
- cybersecurity trainings, knowledge sharing
- participate to interviews
- coordinated cybersecurity-oriented internship, security for Xcp
- mentor

### [Project] Cybersecurity for 16-bit microcontrollers

- migrate/adapt cryptographic libraries on 16-bit microcontrollers
- validate functionality (e.g., using test vectors)
- benchmark and document performance (execution time, performance, features such as constant execution time)

 **UNIVERSITATEA POLITEHNICA TIMIȘOARA** – TIMIȘOARA, ROMANIA

**ASSOCIATED ASSISTANT** – 08/2018 – 03/2022

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Topics:

- Computer Security / Securitatea sistemelor de calcul / Securitatea sistemelor software (RO/EN)
  - theoretical background
  - cryptography in Java/.NET
  - software security (buffer overflows, string formatting, etc.)
- Artificial Intelligence / Bazele Inteligenței Artificiale (RO)
  - Prolog
- Assembly Programming / Programarea în Limbaj de Asamblare (RO)
  - x86 assembly language

 **OCE SOFTWARE S.R.L.** – TIMIȘOARA, ROMANIA

**SOFTWARE DEVELOPER** – 06/2017 – 09/2017

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Internship activities

- develop and benchmark an AES library using the .NET framework
- validation, unit testing
- time management

## ● **EDUCATION AND TRAINING**

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08/2020 – CURRENT

**PHD - SECURITY SOLUTIONS FOR CONTROLLER AREA NETWORKS**

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Main research activity

- Key-exchange protocols over CAN/Ethernet/FlexRay buses
- Secure in-vehicle time synchronization
- Deployment on Infineon AURIX / ARM microcontrollers

**Level in EQF** EQF level 8

08/2018 – 05/2020 Timișoara, Romania

**MASTER OF SOFTWARE ENGINEERING** Universitatea Politehnica Timișoara

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Master în domeniul Software Engineering, limba engleză.

**National classification** Nivelul 7 EQF

02/2020 – 04/2020

**GRADUATED "CRYPTOGRAPHY I", INSTRUCTOR DAN BONEH** Stanford University

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Fundamente matematice

- teoria probabilitatilor
- teoria numerelor

Definiții formale, construcții și criptanaliză

- funcții hash criptografice
- primitive criptografice simetrice (block/stream ciphers, MACs)
- criptare autenticată
- criptosisteme cu cheie publică (RSA, ElGamal)

2017 – 2019 Romania

**GRADUATED TEACHING MODULE I** Universitatea Politehnica Timisoara, Facultatea de Comunicare

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08/2014 – 05/2018 Timișoara, Romania

**ENGINEER IN THE DOMAIN OF COMPUTERS AND INFORMATION TECHNOLOGY** Universitatea Politehnica Timișoara

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- matematică
- inginerie software
- securitatea sistemelor de calcul
- programare în limbaj de asamblare
- programare în limbaje de nivel înalt
- programare web
- arhitectura calculatoarelor

- logică digitală
- arhitectura software
- verificare și validare software
- sisteme de operare
- baze ale inteligenței artificiale

**National classification** Nivelul 6 EQF

2009 – 2013 Timișoara, Romania  
**HIGH SCHOOL DIPLOMA** Liceul „Grigore Moisil” din Timișoara

Disciplinele din planul de învățământ, profil matematică-informatică

**National classification** Nivelul 5 EQF

09/2016 – 01/2017 Timișoara, Romania  
**GRADUATED "CODE: ANALYSIS, BUGS, AND SECURITY" (4 ECTS), INSTRUCTOR MARIUS MINEA**  
Universitatea Politehnica Timișoara, Facultatea de Automatică și Calculatoare

Code: analysis, bugs and security, supported by Bitdefender

**National classification** Nivelul 6 EQF

● **LANGUAGE SKILLS**

Mother tongue(s): **ROMANIAN**  
Other language(s):

|                | UNDERSTANDING |         | SPEAKING          |                    | WRITING |
|----------------|---------------|---------|-------------------|--------------------|---------|
|                | Listening     | Reading | Spoken production | Spoken interaction |         |
| <b>ENGLISH</b> | C1            | C1      | C1                | C1                 | C1      |

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user

● **PUBLICATIONS**

2025  
[Secure Time Synchronization with Sub-Microsecond Accuracy in Controller Area Networks](#)

**Authors:** Adrian Musuroi and Bogdan Groza | **Journal Name:** Transactions on Industrial Informatics | **Volume, Issue and Pages:** Vol. 21, issue 6, pages 4522-4532 | **Publisher:** IEEE  
**Link** <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=10922743>

2024  
[Blockchain integration for in-vehicle CAN bus intrusion detection systems with ISO/SAE 21434 compliant reporting](#)

**Authors:** Tudor Andreica, Adrian Musuroi, Alfred Anistoroei, Camil Jichici & Bogdan Groza | **Journal Name:** Scientific reports | **Volume, Issue and Pages:** Vol. 14, no. 8169 | **Publisher:** Nature  
**Link** [https://www.aut.upt.ro/~bgroza/Papers/blockchain\\_ids.pdf](https://www.aut.upt.ro/~bgroza/Papers/blockchain_ids.pdf)

2023  
[Control System Level Intrusion Detection on J1939 Heavy-Duty Vehicle Buses](#)

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**Authors:** Camil Jichici, Adriana Berdich, Adrian Musuroi and Bogdan Groza | **Journal Name:** Transactions on Industrial Informatics | **Volume, Issue and Pages:** Vol. 20, issue 2 | **Publisher:** IEEE  
**Link** [https://www.aut.upt.ro/~bgroza/Papers/control\\_systems\\_ids.pdf](https://www.aut.upt.ro/~bgroza/Papers/control_systems_ids.pdf)

2021  
[Fast and Efficient Group Key Exchange in Controller Area Networks \(CAN\)](#)

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**Authors:** Adrian Musuroi, Bogdan Groza, Lucian Popa and Pal-Stefan Murvay | **Journal Name:** IEEE Transactions on Vehicular Technologies | **Volume, Issue and Pages:** Vol. 70, issue 9, pages 9385-9399

**Link** <https://www.aut.upt.ro/~bgroza/Papers/fkex.pdf>

2019

### **Security for Low-end Automotive Sensors: A Tire-pressure and Rain-light Sensors Case Study**

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„Best Student Paper Award”

**Authors:** Adrian Musuroi, Bogdan Groza, Stefan Murvay and Horatiu Gurban | **Journal Name:** Proc. of 9th Intl. Conf. on Pervasive and Embedded Computing and Communication Systems | **Volume, Issue and Pages:** Volume 9, pages 25-33

## ● **DRIVING LICENCE**

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**Driving Licence:** B