Doru-Stefan Irimescu

DATE OF BIRTH:
13/01/1995

CONTACT

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WORK EXPERIENCE

15/09/2020 – CURRENT – Espoo, Finland

Autonomous Vehicle Engineer

Sensible 4

Agile software development for high level collision avoidance systems in the Planning and Control deparment.

C++ and Python programming for a ROS (Robot Operating System)-based autonomous driving system.

My first task was to write a statechart library, and then a behaviour planner which uses it. The behaviour planner is responsible with selecting the appropriate driving behaviour of the self-driving vehicle.

Designed and documented (with UML) various C++ libraries, with focus on collision avoidance systems.

Wrote GitLab .ci pipeline scripts which enabled the first monorepo (with accurate code coverage reports) in our Agile feature team.

Designed, documented and performed vehicle testing scenarios.

Wrote (using Python) Scenario Runner traffic simulation scenarios, according to functional requirements.

My work brought a strong focus towards sofware quality, SOLID object-oriented programming and clean code to the Cautios Driving feature team of the Planning and Control department. Moreover, I have increased the awareness of test-driven development, and dramatically increased the code coverage of our product. After my arrival, I have pair-coded with all of the developers in my team, and thus increased awareness and confidence in this practice.

Tools used: C++, Python, ROS, Googletest, Google Mock, GitLab, Docker, CMake, Catkin, Carla, Scenario Runner

01/03/2019 – 01/09/2020

University research assistant, master thesis

Aalto University, department of Electronics and Nanoengineering

Worked on my master's thesis, entitled "A hardware and software platform for characterization and prototyping of a low-power energy-harvesting SoC". The thesis received Huawei Master's Thesis Award 2020.

Designed a measurement and characterization PCB for a research-grade integrated circuit, using Altium Designer.

Used LabVIEW, together with USRP n210 for receiving and transmitting data from/to the chip.

Developed a Python programming interface for measurement automation and configuration of the IC, using test-driven development with Pytest and SOLID object-oriented programming. Low-level IC configuration achieved with Arduino Due programming in C++.

Designed analog filters and impedance matching networks using Advanced Design System (ADS).

Performed various laboratory tests and measurements, using oscilloscope, vector network analyzer, power supply, multimeter.

My designs helped prof. Kari Halonen's research group to test and characterize their IC designs, as well as create a prototype to showcase the work to project stakeholders.

Espoo, Finland
https://aaltodoc.aalto.fi/handle/123456789/47153

13/01/2020 – 31/03/2020

University teaching assistant

Aalto University, department of Computer Science

Course name: CS-E4800 Artificial Intelligence

Supported the course exercises with various Python programming, troubleshooting and debugging tasks.

My contributions helped ease the professor's workload on the (in-development) course, and strengthened the students' understanding of some the most popular AI algorithms.

Espoo, Finland

01/09/2019 – 31/12/2020

University teaching assistant

Aalto University, department of Electrical Engineering and Automation

Course name: ELEC-E8001 Embedded Real-Time Systems

Developed from scratch a set of laboratory exercises that showcase the capabilities of an STM32 ARM Cortex-M4 development board (NUCLEO-F411RE).

Various hardware and peripheral interfacing, as well as FreeRTOS application development, done using the STM32CubeIDE environment.

My responsibilities were hardware selection and procurement, course development and grading, meeting with students for instructing and troubleshooting, embedded software design.

My work benefited the Electrical Engineering and Automation department by augmenting with practical exercises and hands-on experience a course that is compulsory for the Control, Robotics and Autonomous Systems major, and that had previously been only theory-based.

Espoo, Finland

01/08/2018 – 31/10/2018

Embedded systems engineer

Artisense GmbH

Developed, implemented and documented a data acquisition system prototype, from both the hardware and software aspects. Kinetis programming and embedded design software for an FRDM-K66F based inertial measurement unit data acquisition system according to time and data format requirements given by the client. PCB design, order and assembly. Electronics prototyping. Software architecture design and documentation.

Tools and technologies used in this project: MCUXpresso, FRDM-K66F, Kinetis SDK, SPI, UDP, Lwip, Autodesk Eagle, Processing.

In the end, the user could log into the measurement system, send a timing configuration for data acquisition rate and camera triggering, and receive the data on the PC. My work enabled Artisense to develop a successful prototype for its hardware and data infrastructure.

Munich, Germany

01/09/2017 – 01/05/2018

Embedded systems trainee, bachelor thesis

Wärtsilä

Worked on my bachelor thesis, entitled "Absolute position measurement and control for Wärtsilä engine during slow turning".

The main tasks were designing, prototyping and improving a control system using the Matlab/Simulink environment and the Wärtsilä UNIC engine control system for diesel engines.

My thesis work enhanced the maintainability of the next generation of diesel engines, and made the slow turning process more controllable and documented.

Vaasa, Finland
https://www.theseus.fi/handle/10024/142890

01/05/2016 – 31/08/2017

Embedded systems trainee

Wärtsilä

I have built a 6 channel power monitoring data acquisition board, involving hardware and software design using Pads Logic and Layout,

Multisim Blue, Orcad Pspice, C programming for ARM microcontrollers together with the lwip stack and FreeRtos.

My work was a part of the Wärtsilä digitalization endeavor, aiming to improve and ease the automated laboratory engine tests.

I had carried out various tasks regarding engine control automation systems and electronics, with the purpose of building and improving two demonstrational kits of the Wärtsilä UNIC system.

Vaasa, Finland

01/04/2014 – 31/08/2015

Software engineering trainee

Vaasa University of Applied Sciences

Android software development for an embedded systems bachelor thesis entitled 'Smart Lock', using the Java programming language.

My work has helped a graduating student to successfully implement a fully automated, smartphone-controllable door lock as his bachelor thesis.

Vaasa, Finland

01/05/2013 – 01/06/2013

Software engineering trainee

Bellegames

I wrote software documentation for a game development startup, using the Java programming language and UML

diagrams.

Oulu, Finland

EDUCATION AND TRAINING

01/09/2018 – 29/03/2021 – Finland

Master of science

Aalto University

Automation and Electrical Engineering

125/120 ECTS

GPA: 4.71

EQF level 7

01/08/2014 – 20/04/2018 – Vaasa, Finland

Bachelor of engineering, Information Technology

Vaasa University of Applied Sciences

Information technology degree with focus on embedded systems

GPA:4.76

- Electronics design
- Software engineering
- Embedded software design
- Telecommunications
- Advanced courses in Mathematics
- Basics of control engineering

Optional master level courses from Vaasa University

GPA:5.0/5.0

- Computer Architectures
- Probability and Statistics
- Digital Signal Processors
- Numerical Methods

EQF level 6

28/08/2013 – 15/05/2014 – Oulu, Finland

Bachelor of engineering, Information Technology

Oulu University of Applied Sciences

Information technology degree with focus on software engineering and web development

GPA:4.16/5.0

- Software engineering
- Databases
- Java programming
- Web technologies

EQF level 6

15/09/2009 – 15/07/2013 – Iasi, Romania

Baccalaureate

Colegiul Costache Negruzzi

Matriculation exam: Physics 10.0/10.0 Mathematics 9.50/10.0 Romanian 7.85/10.0

EQF level 4

LANGUAGE SKILLS

MOTHER TONGUE(S): Romanian

OTHER LANGUAGE(S):

English

Listening	Reading	Spoken production	Spoken interaction	Writing
C1	C1	C1	C1	C1

Finnish

Listening	Reading	Spoken production	Spoken interaction	Writing
B1	B1	B1	B1	B1

ORGANISATIONAL SKILLS

Organisational skills

- Leadership: During the Project Work course in 2019, I led a team of 7 people and four distinct nationalities towards designing a ship thruster interface.

-I have successfully scheduled the weekly meetings, performed the WBS, monitored and managed the project progress (using Gantt charts) and also lead the team by example, being the hardware design engineer.

COMMUNICATION AND INTERPERSONAL SKILLS

Communication and interpersonal skills

Excellent communication skills gained during my bachelor of engineering studies conducted in English, as well as workplace experience.

Confident with keeping long presentations.

Tech-savvy person, I can communicate at ease with engineers with different backgrounds and specializations.