# **Marius** Cetateanu

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About me: I am a software engineer with more than 17 years of experience having a knack for code optimizations. I like designing and developing key features of software products in a challenging environment and to work aside team members from whom I can learn in order to improve my skills and to whom I can share my knowledge in a deep spirit of collaboration.

## DIGITAL SKILLS

### Programming Languages

C  |  C++  |  Python  |  Golang  |  Java  |  Javascript  |  Assembly(x86, ARM)  |  SQL

### Techniques

OOP  |  Design Patterns  |  TDD  |  Multithreading  |  Parallel Programming  |  SIMD Optimization  |  Machine Learning

## WORK EXPERIENCE

11/06/2019 – CURRENT – La Hulpe, Belgium
**SENIOR SOFTWARE ENGINEER –** SWIFT

- Design, implementation and maintenance of functionalities and features of software products related to the SWIFT IPSec network(Alliance Gateway, Alliance Remote Gateway).
- Definition and implementation of project management practices - Agile methodologies - as part of SWIFT's Agile transformation.

01/04/2017 – 28/02/2019 – Brussels, Belgium
**SENIOR SOFTWARE ENGINEER –** SONY DEPTHSENSING SOLUTIONS (F.K.A. SOFTKINETIC)

- Administered small HPC cluster using SLURM as the scheduler and Warewulf as the provisioning system.
- Designed and implemented features for 3D sensing middle-ware for car in-cabin gesture recognition and monitoring.
- Implemented parallelization of internal software tools for processing machine learning related data and training classifier models.
- Optimized 3D sensor data processing libraries for better performance on ARMv7 platform.

01/06/2014 – 31/03/2017 – Brussels, Belgium
**SENIOR SOFTWARE ENGINEER –** SOFTKINETIC

- Had a major role in the definition and implementation of internal coding style standards and guidelines.
- Designed, configured and deployed a small scale HPC cluster for using in machine learning related tasks.
- Ported and optimized a machine learning based hand pose classifier for in-cabin gesture recognition.
- Implemented the C API for the 3D sensor image filtering library.
- Designed and developed low level optimizations and algorithm improvements for the 3D sensing middle-ware for car in-cabin gesture recognition.
- Developed the Python bindings of the library implementing the computational pipeline for the 3D sensors and cameras.
- Designed and developed the library that implemented the computational pipeline for all the SoftKinetic 3D sensors and cameras - transformations of the raw sensor data, depthmap computation, filtering.
- I was the technical lead regarding porting, optimizations(SIMD & GPU) and mutithreading aspects of the Human Tracking Library, a library for multi-user 3D full-body tracking using a depth camera sensor, for the PlayStation 4 console. I designed and implemented the software pipeline system of the library in order to achieve optimal performance on the PlayStation 4's hardware. The library was used in the Just Dance series of games developed by Ubisoft.
- Designed and developed an instrumenting profiler used to measure the performance of the SoftKinetic libraries.

05/07/2010 – 31/05/2014 – Brussels, Belgium

**SOFTWARE ENGINEER –** SOFTKINETIC

- Designed and developed a Linux kernel device driver to control the custom 3D sensing camera and optimized the image processing algorithms of the CarLib library, used for in-cabin gesture recognition inside the 2015 BMW Series 7 car.
- Ported the SoftKinetic iisu(interface is u) middle-ware to Android. Developed Android applications to showcase the usage of iisu.
- Designed and developed a SIMD acceleration library covering x86 and ARMv7 processor architectures - similar to the current proposal for C++ library standardization. The library provided a thin and virtually no overhead layer on top of SIMD(Single Instruction Multiple Data) compiler intrinsics for x86 SSE and ARMv7 NEON instruction sets. The library was and is the basis for all low level optimizations across all SoftKinetic\Sony Depthsensing Solutions libraries. It paved the way for the company's products to be used inside embedded devices, phones & cars.
- Optimized the SoftKinetic iisu middle-ware for the ARMv7 architecture's NEON SIMD co-processor.
- Developed a basic build system based on CMake and shell scripts to build the SoftKinetic libraries on x86 and ARM Linux platforms.
- Developed features for the SoftKinetic middle-ware(iisu) used in a complete 3D system camera that had all processing done on the camera itself with the final 3D depthmap streamed via network connection.
- Ported the iisu middle-ware to the ARM9 platforms. Developed enhancements of image processing algorithms using the iMX hardware accelerator of the Texas Instruments DM365 processor.

01/03/2006 – 11/06/2010 – Bucharest, Romania
**SOFTWARE DEVELOPMENT ENGINEER –** FREESCALE SEMICONDUCTOR

- Evangelized proper coding style and usage of code documentation across the team and department.
- Developed features for the trace and profiling tools for the various Freescale supported architectures.
- Developed & maintained various features of the ARM debugger for the Code Warrior IDE. In that role I helped my team through three successful major release cycles.
- Designed and developed the ARM Debugger's Linux kernel & module debugging plug-ins and the corresponding Eclipse IDE plug-ins.
- Designed and developed various Eclipse IDE plugins: ARM tool chain integration plug-in and the ARM elf importer wizard.
- Collaborated on various core debugger features: e.g. enhanced the watchpoints and the cache viewer features.

08/11/2004 – 16/02/2006 – Sibiu, Romania
**SOFTWARE DEVELOPMENT ENGINEER –** CONTINENTAL AUTOMOTIVE SYSTEMS

- Developed features for a PC hosted control panel for the in-house XDL Measurement System application that handled the firmware download and configuration over USB for a hardware probe used to diagnose and test the ABS ECU(Electronic Control Unit).
- Developed and maintained firmware for the XDL hardware probe and developed a C API for communication with a cryptographic EEPROM inside the hardware probe.
- Enhanced and maintained the Windows USB driver used for communication with the XDL hardware probe.
- Implemented and maintained the testing tools for the ABS(Anti-lock Brake System) systems.

# EDUCATION AND TRAINING

01/01/2020 – 17/07/2020
**CRYPTOGRAPHY I –** Stanford University via Coursera

https://coursera.org/share/649bf4f8482bc5556feedbad3d90e0bf

01/01/2019 – 12/03/2019
**CONVOLUTIONAL NEURAL NETWORKS –** Deeplearning.ai via Coursera

https://coursera.org/share/393764f7096b06f66068094c56578e19

01/07/2018 – 22/09/2018
**NEURAL NETWORKS AND DEEP LEARNING –** Deeplearning.ai via Coursera

https://coursera.org/share/4a3a50feb2d79b214f0337c8b1e28766

01/04/2018 – 04/06/2018
**PARALLEL PROGRAMMING –** École Polytechnique Fédérale de Lausanne via Coursera

https://coursera.org/share/4b5fe87b93067a7923bc8fc26dea077d

01/06/2016 – 01/02/2017
**MACHINE LEARNING SPECIALIZATION –** University of Washington via Coursera

https://coursera.org/share/c2ab3d400afb697c7134ff69c67147dc

01/10/1999 – 30/06/2004
**DIPLOMAT ENGINEER(MSC) IN COMPUTER ENGINEERING –** Gheorghe Asachi Technical University, Iasi, Romania

- ## LANGUAGE SKILLS

**Mother tongue(s):** ROMANIAN

**Other language(s):**

| | UNDERSTANDING | | SPEAKING | | WRITING |
|---|---|---|---|---|---|
| | Listening | Reading | Spoken production | Spoken interaction | |
| **ENGLISH** | C2 | C2 | C2 | C2 | C2 |
| **FRENCH** | C2 | C2 | B2 | C1 | B2 |
| **ITALIAN** | B2 | B2 | A2 | B1 | A2 |

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