Francesco Fucci

Lead Software Engineer

August 3, 1987

Benoitstraat 17, 5654BT Eindhoven

+31 6 25 35 53 30

fr.fucci

fr.fucci@hotmail.it

EU Citizenship

Social Network

Github Page

LinkedIn Page

Languages

- Italian ●●●●●
- English ●●●●●
- French ●○○○○

Programming

- C++ (11/14/17)
- Julia
- C
- Python

Learning

- Rust
- Haskell

Working Experience

2021 – now **Lead Software Engineer** ASML

Experience in leading team of 4-6 people. Prepare design documents, define tasks that team member can execute, perform code-reviews and design reviews. I write code with the team, while supervising that they can achieve deadlines. Contributed to different deliverables: the design of different of a library for tensor-based operations (i.e. einsum) using template-meta programming, algorithms for value interpolation.

2019 – 2021 **Software Design Engineer** ASML

- Development of calibration application for NXE machines (**Python/C++**)
- Development of a quadratic programming interior point solver in **Julia** and in **C++**.
- Refactoring of legacy C++ components to newer standards. Definition of the architecture of software components for new ASML machines, using **C++ 11**. Analyzed code performance with statistical benchmarks (i.e., Google Microbenchmark)

2015 – 2019 **Senior Software Engineer** Critiware

- Contributed to the design of the plasma control system, which will be the control software system responsible of controlling part of the plant systems of the ITER Machine (https://www.iter.org). Design of the system using Model-Driven Design approaches from requirements analysis to structural solution. Contributed to the implementation of real-time software prototype in **(C++14)** on Linux RHEL 6.
- Development of tools to assess the tolerance to software errors, which is now used in production to assess Android OS low-level code using **(C++11)**.
- Tools for the analysis of post-drive run for trains (Java, Eclipse RCP Dependency Injection Framework).
- Developed a DSL to aid developers to assess Python code.

2011 – 2012 **Software Engineer** SESM

Toolchain tailoring automatic code generation of test code for ATC applications.

Education

Postgraduate Training

2013 – 2014 **PhD Research Internship** EPFL

I contributed on the development of components for a platform for the automated analysis of systems code. I developed an interpreter in C++, which executes symbolic expressions. The project is available at the following address: S2E

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About Me

I enjoy building systems and learning new things. Currently my favorite study topics are modern programming languages, high-performance system design, quantitative methods and machine learning. I worked in several domains from railways systems, fusion, and lithography machines.

Design Skills

- Agile Software Design: SOLID, Design Patterns
- Numerical Optimization
- Machine Learning
- Deep-Learning
- Operating Systems
- Systems Design

Other Skills

- MATLAB
- Git
- Jenkins
- Boost
- Tensoflow
- Keras

Keywords

Agile, Collaboration, Team-oriented, Goal-oriented, Quick-learning, AI

Academic

2012 – 2015 **PhD Computer Engineering** UNINA
Thesis: Model-based verification of Operating Systems device drivers. In my thesis I explored different techniques for automatic verification of device drivers like runtime verification and symbolic execution.

Certificates

Coursera — Deep Learning Specialization
Prowareness Agile Academy — Scrum Foundation

Personal Projects

M-Opt A $C++20$ framework to price options with Montecarlo method (ongoing project). **link**

SLANG A DSL to specify contracts for device driver verification (C++, Boost, Java).

Selected Publications

2019 **Management ofthe ITER PCS design using a system- engineering approach**
F.Fucci et Al.
28th IEEE Symposium on Fusion Engineering (SOFE)

2016 **Software Aging Analysis of the Android Mobile OS**
D. Cotroneo, F. Fucci, A. K. Iannillo, R. Natella, R. Pietrantuono.
IEEE International Symposium on Software Reliability Engineering

2015 **MoIO: Run-Time Monitoring for I/O Protocol Violations in Storage Device Drivers;**
D. Cotroneo, L. De Simone, F. Fucci, R. Natella.
IEEE International Symposium on Software Reliability Engineering

2013 **SABRINE: StAte-Based Robustness testIng of operatiNg systEms;**
D. Cotroneo, D. Di Leo, F. Fucci, R. Natella
IEEE/ACM International Conference on Automated Software Engineering (ASE)

Awards

2012 **Best Paper Award**
Best Paper Award 5th International Conference on Dependability (DEPEND)

2006–2007 **Best Student Award**
Best student of the of University of Napoli "Federico II" Computer Engineering faculty.