

# Matteo Marra

POST-DOCTORAL RESEARCHER

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## Education

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### Vrije Universiteit Brussel

[Brussels, Belgium](#)

DOCTOR OF SCIENCE

Oct. 2017 - May 2022

- PhD in Computer Science
- Title of the dissertation: *A Live Debugging Approach for Big Data Processing Applications*
- Supervisors: Elisa Gonzalez Boix (VUB), Guillermo Polito (CNRS).

### Vrije Universiteit Brussel

[Brussels, Belgium](#)

MSc APPLIED SCIENCE AND ENGINEERING: COMPUTER SCIENCE

Sep. 2015 - Jul. 2017

- Graduated *with great distinction*
- Specializing in profile: Software Languages and Software Engineering
- Master thesis over debugging Data Intensive and non stoppable applications in live programming.  
In collaboration with: *Software Languages Lab (VUB, Brussels) - RMOD (INRIA, Lille)*

### Università di Bologna

[Cesena, Italy](#)

LAUREA TRIENNALE IN INGEGNERIA E SCIENZE INFORMATICHE - BACHELOR IN COMPUTER SCIENCE AND ENGINEERING

Sep. 2012 - Jul. 2015

- Graduated *cum laude*

### Universidad Carlos III de Madrid

[Madrid, Spain](#)

STUDY ABROAD, Erasmus+ PROGRAM

Sep. 2014 - Jan. 2015

- Attended courses of: *Real Time Systems, Computing Technology for the Web, Heuristics and Optimization, User Interfaces, Software Engineering*

### Liceo Scientifico B.Rosetti

[San Benedetto del Tronto, Italy](#)

HIGH SCHOOL DIPLOMA: *Liceo Scientifico - PNI*

Sep. 2007 - Jul. 2012

- Diploma obtained with a final grade of 94/100

## Experience

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### Vrije Universiteit Brussel

[Brussels, Belgium](#)

POST-DOC RESEARCHER

May 2022 - Now

- Working on the topic of debugging Big Data, as well as applications of my work to other domains such as IoT

### Vrije Universiteit Brussel

[Brussels, Belgium](#)

PHD IN COMPUTER SCIENCE

Oct. 2017 - May 2022

- Topic: *Debugging support for Big Data processing applications*
- Funded by Fonds Wetenschappelijk Onderzoek with an FWO-SB grant number: 1S63418N
- Supervisors: Elisa Gonzalez Boix, Guillermo Polito

### Elements S.R.L.

[Cesena, Italy](#)

SOFTWARE ENGINEER

Jul. 2015 - Sep. 2017

- Development of *Elements Data Reader 3*, software to visualize and analyze in real time single- and multi-channel acquisitions of very low amplitude signals generated by an amplifier produced by *Elements S.R.L.*, suitable for different nanosensor applications, with C++, Qt5 and qwt
- Maintenance of *Elements Data Analyzer*

- Brief introduction to C++, Qt5 and qwt
- Development of *Elements Data Analyzer*, software to visualize and analyze single- and multi-channel acquisitions of very low amplitude signals, suitable for different nanosensor applications, with C++, Qt5 and qwt7
- Development of an high throughput acquisition module from a FTD2XX device

## Teaching and Supervising

### Metaprogramming and Reflection

Vrije Universiteit Brussel

TEACHING ASSISTANT OF THE MASTER COURSE

17/18, 18/19, 19/20, 20/21, 21/22

- Basics and metaprogramming in Pharo Smalltalk
- Basics and metaprogramming in Common Lisp

### Cloud Computing and Big Data Processing

Vrije Universiteit Brussel

TEACHING ASSISTANT OF THE MASTER COURSE

17/18, 18/19, 19/20, 20/21, 21/22

- Big Data Processing with Apache Spark

### Bachelor Thesis Supervision

Vrije Universiteit Brussel

OPTIMIZING THE BIG DATA

21/22

Author: Jean Nivonsay

### Master Thesis Supervision

Vrije Universiteit Brussel

OUT-OF-THINGS DEBUGGING: AN ONLINE DEBUGGING APPROACH FOR INTERNET OF THINGS

20/21

Author: Carlos Rojas Castillo

## Publications

### Practical Online Debugging of Spark-Like Application.

QRS '21

MARRA M, POLITO G, AND GONZALEZ BOIX E

2021

Proceedings of the 21st IEEE International Conference on Software Quality, Reliability, and Security (QRS '21)

### WOOD: Extending a WebAssembly VM with Out-of-Place Debugging for IoT applications.

VMIL '21

ROJAS CASTILLO C J, MARRA M, BAUWENS J, GONZALEZ BOIX E

2021

WIP paper presented at the Workshop on Virtual Machines and Language Implementations (VMIL '21).

### A Survey on Mobile Applications for Smart Agriculture: Making Use of Mobile Software in Modern Farming.

SN CS

OTEYO I N, MARRA M, KIMANI S, DE MEUTER W, AND GONZALEZ BOIX E

2021

SN Computer Science, 2(4)

### Framework-Aware Debugging with Stack Tailoring

DLS '20

MARRA M, POLITO G, AND GONZALEZ BOIX E

2020

Proceedings of the 16th ACM SIGPLAN International Symposium on Dynamic Languages (DLS '20) (pp. 71-84)

### A Debugging Approach for Live Big Data Applications

SCICO

MARRA M, POLITO G, AND GONZALEZ BOIX E

2020

Science of Computer Programming, Vol. 194 (32p.)

### Towards Scalable Blockchain Analysis

WETSEB '19

BRAGAGNOLO S, MARRA M, POLITO G, AND GONZALEZ BOIX E

2019

Proceedings of 2nd edition of the International Workshop on Emerging Trends in Software Engineering for Blockchain

### A Debugging approach for Big Data Applications in Pharo

IWST '18

MARRA M, BERA C, AND GONZALEZ BOIX E

2018

Proceedings of the 13th edition of the International Workshop on Smalltalk Technologies

## Out-of-place Debugging: a Debugging Architecture to Reduce Debugging Interference

MARRA M, POLITO G, AND GONZALEZ BOIX E

The Art, Science and Engineering of Programming, Vol 3(2)

<Programming>

2018

## Debugging Cyber-Physical Systems with Pharo: An Experience Report

MARRA M, GONZALEZ BOIX E, COSTIOU S, KERBOEUF M, PLANTEC A, POLITO G, AND DUCASSE S

Proceedings of the 12th edition of the International Workshop on Smalltalk Technologies

IWST '17

2017

## Real-Time Statistics on Ion-Channel Recordings using a Novel All-In-One BLM Educational Kit with Embedded Miniaturized Amplifier

ROSSI M, THEI F, BENNATI M, HUSHI B, MARRA M, CRESCENTINI M

Biophysical Journal, vol 110, p 506a

Bio J

2016

## Languages

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**Italian** Mother tongue

**English** Fluent

**French** Conversation

**Spanish** Conversation

## Skills

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**Programming Languages** Pharo Smalltalk, Scala, C++, C, Java, Common Lisp, Scheme  
VB .net, C#, Bash, SQL

**Others** Latex, UML

**Big Data Frameworks** Apache Spark, Apache Yarn, Hadoop Map/Reduce