Cristián
RAMÓN-CORTÉS VILARRODONA

Industrial Engineer | Computer Sciences Engineer

- **DNI:** 53295906F
- **Birthdate:** 19th October 1990
- **Birthplace:** Barcelona, Catalonia, Spain
- **Address:** Carrer l'Hort de la Vila, 30-34. 08017 Barcelona

I am a PhD Student for the Computer Architecture Department (DAC - UPC) working in collaboration with the Workflows and Distributed Computing group (WDC) at the Barcelona Supercomputing Center (BSC). My areas of interest are High Performance Computing, Big Data Ecosystems, and Distributed Computing. More specifically, I am focused in Programming Models for Distributed Platforms, Task Flows, Data Flows, and Streaming technologies. During my career at the BSC I have contributed in the design and development of different tools and programming models for HPC in distributed platforms, such as COMPSs, PyCOMPSs, and PMES. I have been working with Java and Python for several years under different environments and methodologies.

PERSONAL INFORMATION

- **Phone:** +34 687 860 612
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- **LinkedIn:** linkedin.com/in/cristian-ramon-cortes
- **GitHub:** github.com/cristianrcv
- **StackOverflow:** stackoverflow.com/u/6018655/cristian-ramon-cortes
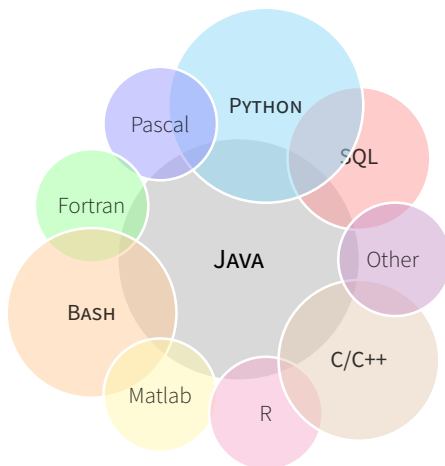- **ORCID:** orcid.org/0000-0003-4170-818X

EDUCATION

2017   **Master in Innovation and Research in Informatics, High Performance Computing (MIRI - HPC)**
Universitat Politècnica de Catalunya (UPC)

2014   **Double Bachelor and Master of Engineering Diploma**
Centre de Formació Interdisciplinaria Superior (CFIS)
Universitat Politècnica de Catalunya (UPC)

2014   **Bachelor and Master of Engineering in Industrial Engineering**
Escola Tècnica Superior d'Enginyeria Industrial de Barcelona (ETSEIB)
Universitat Politècnica de Catalunya (UPC)

2014   **Bachelor and Master of Engineering in Computer Science**
Facultat d'Informàtica de Barcelona (FIB)
Universitat Politècnica de Catalunya (UPC)

2008   **Primary, Secondary and General Education**
AULA Escola Europea

LANGUAGES

Catalan   ●●●●●
Spanish   ●●●●●
English   ●●●●○
French   ●●●●○

⌨ Programming Languages

Python · SQL · Pascal · Fortran · Java · Other · Bash · C/C++ · Matlab · R

✚ Strengths

> Organised, methodical, and responsible
> Perfectionist, demanding, and ambitious
> Passionate, curious, and motivated
> Ease of learning
> Autonomous and teamwork
> Management and communication skills

💼 Experience

Today
May 2017

PhD Student, Barcelona Supercomputing Center (BSC), Spain
PhD Student for the Computer Architecture Department (DAC - UPC) working in collaboration with the Workflows and Distributed Computing group (WDC) at the Barcelona Supercomputing Center (BSC). The thesis is entitled *"Programming Models to support Data Science Workflows"* and the main research lines are:
> Orchestration of data science workflows
> Automatic parallelization of affine loops in Python
> Distributed execution of Hybrid Flows composed of Data Flows and Task Flows.
> Integration of Streaming standards and technologies inside COMPSs

Java · Python · Bash · C++ · Maven · Eclipse · IntelliJ Idea

May 2017
February 2016

Junior Developer, Barcelona Supercomputing Center (BSC), Spain
Junior Developer at the Workflows and Distributed Computing (WDC) group at the Barcelona Supercomputing Center (BSC). My main tasks involved:
> Enhancement of the COMPSs infrastucture and deployment
> Design and implement several features inside the COMPSs Runtime

Java · Python · Bash · Maven · Eclipse · Jenkins · DEB packages · RPM packages

February 2016
April 2014

Resident Student, Barcelona Supercomputing Center (BSC), Spain
Resident Student at the Grid Computing group at the Barcelona Supercomputing Center (BSC). My main tasks involved:
> Build a testing infrastructure for COMPSs
> Re-design the COMPSs Monitor

Java · Python · Bash · Maven · Eclipse · Jenkins · ZK Framework · Apache Tomcat

December 2013
September 2011

Teacher in a Student Advise Service, Academia SOL, Spain
Teacher of Bachelor and Master of Engineering students at the Academia SOL. The goal was to provide academic review and reinforcement in a simpler and closer way than the university professors. Taught subjects:
> ETSEIB: Heat Transfer, Informatics 1, Informatics 2
> EUETIB: Informatics
> FIB: Mathematics 2, Theory of Computation, Programming II

Python · C++ · Bash · Lazarus · Public Speaking

🏛 Publications

AutoParallel: A Python module for automatic parallelization and distributed execution of affine loop nests

Cristian Ramon-Cortes, Ramon Amela, Jorge Ejarque, Philippe Clauss, Rosa M Badia
Proceedings of the 8th Workshop on Python for High-Performance and Scientific Computing (PyHPC 2018 - SC18)
November 2018

🔗 arxiv.org/abs/1810.11268

`PyCOMPSs` `PLUTO` `Automatic Parallelization` `HPC` `Distributed Computing`

Boosting Atmospheric Dust Forecast with PyCOMPSs

Javier Conejero, *Cristian Ramon-Cortes*, Kim Serradell, Rosa M. Badia
IEEE eScience 2018
September 2018

🔗 researchgate.net/publication/329309591_Boosting_Atmospheric_Dust_Forecast_with_PyCOMPSs

`PyCOMPSs` `NMMB-MONARCH` `HPC` `Distributed Computing` `Big Data` `Dust Prediction`

Executing linear algebra kernels in heterogeneous distributed infrastructures with PyCOMPSs

Ramon Amela, *Cristian Ramon-Cortes*, Jorge Ejarque, Javier Conejero, Rosa M. Badia
2018 Oil and Gas Science and Technology - Revue d'IFP (OGST)
July 2018

🔗 doi.org/10.2516/ogst/2018047

`PyCOMPSs` `COMPSs` `Matmul` `QR` `Cholesky` `Linear Algebra` `HPC` `Distributed Computing`

Transparent Orchestration of Task-based Parallel Applications in Containers Platforms

Cristian Ramon-Cortes, Albert Serven, Jorge Ejarque, Daniele Lezzi, Rosa M. Badia
2017 Journal of Grid Computing (JoGC)
December 2017

🔗 doi.org/10.1007/s10723-017-9425-z

`COMPSs` `Docker` `Mesos` `Singularity` `Chameleon` `HPC` `Distributed Computing` `Containers`

Enabling Python to execute efficiently in heterogeneous distributed infrastructures with PyCOMPSs

Ramon Amela, *Cristian Ramon-Cortes*, Jorge Ejarque, Javier Conejero, Rosa M. Badia
Proceedings of the 7th Workshop on Python for High-Performance and Scientific Computing (PyHPC 2017 - SC17)
November 2017

🔗 doi.org/10.1145/3149869.3149870

`PyCOMPSs` `COMPSs` `Matmul` `QR` `Cholesky` `Linear Algebra` `HPC` `Distributed Computing`

Master Thesis: Enabling Analytic and HPC Workflows with COMPSs

Cristian Ramon-Cortes
UPC Commons
May 2017

🔗 upcommons.upc.edu/handle/2117/111458

`COMPSs` `PyCOMPSs` `MPI` `Binary` `HPC` `Distributed Computing` `Analytic Workflows` `Task Flows` `Orchestration`

Transparent Execution of Task-Based Parallel Applications in Docker with COMP Superscalar

Victor Anton, *Cristian Ramon-Cortes*, Jorge Ejarque, Rosa M. Badia
2017 25th Euromicro International Conference on Parallel, Distributed and Network-based Processing (PDP)
March 2017

🔗 doi.org/10.1109/PDP.2017.26

`COMPSs` `Docker` `Chameleon` `HPC` `Distributed Computing` `Containers`

COMP Superscalar, an interoperable programming framework

Rosa M. Badia, Jorge Ejarque, Daniele Lezzi, Raul Sirvent, Francesc Lordan, *Cristian Ramon-Cortes*, Javier Conejero, Carlos Diaz
Software X
December 2015

🔗 doi.org/10.1016/j.softx.2015.10.004

`COMPSs` `PyCOMPSs` `HPC` `Distributed Computing` `Big Data`

PFC: Design, implementation, and integration of a hand for a Darwin-OP robot.

Cristian Ramon-Cortes Vilarrodona
UPC Commons
November 2014

🔗 upcommons.upc.edu/handle/2099.1/25407

`3D Printing` `Darwin-OP` `SolidWorks` `C++` `Device programming` `Robotics` `Manipulators`