

Cristián RAMÓN-CORTÉS VILARRODONA

Ph.D. in Computer Architecture
Computer Sciences Engineer
Industrial Engineer



i DNI: 53295906F
📅 Birthdate: 19th October 1990
📍 Birthplace: Barcelona, Catalonia, Spain

My areas of interest are Distributed Computing, High Performance Computing (HPC), and Big Data Analytics (BDA). At Dynatrace, I focus on processing and aggregating session data for real user monitoring. However, during my career at the Barcelona Supercomputing Center (BSC), I have actively contributed to the design and development of programming models for distributed platforms, task-based workflows, dataflows, and streaming technologies. And yes, I love JVM-based languages!

PERSONAL INFORMATION

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🐙 GitHub: github.com/cristianrcv
📖 StackOverflow: stackoverflow.com/users/6018655/cristian-ramon-cortes
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EDUCATION

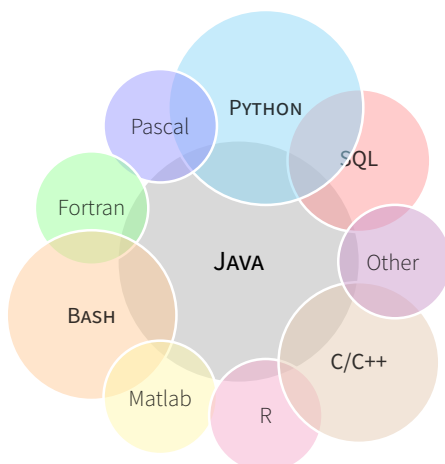
2020	Doctor of Philosophy (Ph.D.) in Computer Architecture. Thesis Title: Programming models to support Data Science Workflows Mark: Excellent Cum Laude Computer Architecture Department (DAC) Universitat Politècnica de Catalunya (UPC)
2017	Master of Science in Innovation and Research in Informatics (MIRI). Specialised in High Performance Computing (HPC) Universitat Politècnica de Catalunya (UPC)
2014	Diploma in double Bachelor and Master of Engineering Centre de Formació Interdisciplinària 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 Sciences 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	● ● ● ● ○

Today October 2020	Senior Software Engineer, Product Owner, and Team Lead, DYNATRACE, Spain <ul style="list-style-type: none"> Senior Software Engineer: My efforts are focused on processing and aggregating session data for real user monitoring, and developing the next generation storage for behavioural analysis Product Owner: Define the product road-map for our component, maintain the backlog, agree priorities with stakeholders, and drive many agile meetings Team Lead: Provide guidance to the group and conduct 1on1's, career plans, 360-feedback, and performance reviews <div>Java Python Bash Cassandra Elasticsearch Spark Jupyter Gradle IntelliJ</div>
October 2020 May 2017	PhD Student, BARCELONA SUPERCOMPUTING CENTER (BSC), Spain <p>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 was entitled <i>"Programming Models to support Data Science Workflows"</i> and the main research lines were:</p> <ul style="list-style-type: none"> Orchestration of Data Science workflows Automatic parallelisation of affine loops in Python Integration with Container technologies (e.g., Docker, Singularity, Mesos) Distributed execution of Hybrid Workflows composed of Task-based Workflows and Dataflows Integration of Streaming Technologies (e.g., Kafka) inside COMPSs <div>Java Python Bash C++ Maven Eclipse IntelliJ</div>
May 2017 February 2016	Junior Developer, BARCELONA SUPERCOMPUTING CENTER (BSC), Spain <p>Junior Developer at the Workflows and Distributed Computing (WDC) group at the Barcelona Supercomputing Center (BSC). My main tasks were to enhance the infrastructure and deployment of COMPSs, and to design and implement several features inside its Runtime.</p> <div>Java Python Bash Maven Eclipse Jenkins DEB packages RPM packages</div>
February 2016 April 2014	Resident Student, BARCELONA SUPERCOMPUTING CENTER (BSC), Spain <p>Resident Student at the Grid Computing group at the Barcelona Supercomputing Center (BSC). My main tasks were to build a testing infrastructure for COMPSs and to re-design its Monitoring component.</p> <div>Java Python Bash Maven Eclipse Jenkins ZK Framework Apache Tomcat</div>
December 2013 September 2011	Teacher in a Student Advise Service, ACADEMIA SOL, Spain <p>Teacher of Bachelor and Master of Engineering students (ETSEIB, EUETIB, and FIB) 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: Heat Transfer, Mathematics, Theory of Computation, Informatics (1 and 2), and Programming 2.</p> <div>Python C++ Bash Lazarus Public Speaking</div>

PROGRAMMING LANGUAGES



+ STRENGTHS

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

A SURVEY ON THE DISTRIBUTED COMPUTING STACK

Cristian Ramon-Cortes, et al.
COMPUTER SCIENCE REVIEW
August 2021

doi.org/10.1016/j.cosrev.2021.100422

Distributed systems Cloud computing Task-based Workflows Dataflows Graph Processing Streaming Data Sharing
Resource Management Infrastructure managers

THE IMPACT OF NON-ADDITIVE GENETIC ASSOCIATIONS ON AGE-RELATED COMPLEX DISEASES

Marta Guido-Martínez, Ramon Amela, et al.
NATURE COMMUNICATIONS
April 2021

doi.org/10.1038/s41467-021-21952-4

GWAS GUIDANCE COMPSs

ENABLING THE EXECUTION OF LARGE SCALE WORKFLOWS FOR MOLECULAR DYNAMICS SIMULATIONS

Pau Andrio, Adam Hospital, *Cristian Ramon-Cortes*, et al.
BiorXiv
April 2021

doi.org/10.1101/2021.04.14.439795

PyCOMPSs PyMDSetup Task-based Workflows

PHD THESIS: PROGRAMMING MODELS TO SUPPORT DATA SCIENCE WORKFLOWS

Cristian Ramon-Cortes
UPC COMMONS
September 2020

handle.net/2117/330142

Distributed Computing Analytic Workflows Task-based Workflows Dataflows Streaming Orchestration

A PROGRAMMING MODEL FOR HYBRID WORKFLOWS: COMBINING TASK-BASED WORKFLOWS AND DATAFLOWS ALL-IN-ONE

Cristian Ramon-Cortes, Francesc Lordan, Jorge Ejarque, Rosa M Badia
FUTURE GENERATION COMPUTER SYSTEMS (FGCS), THE INTERNATIONAL JOURNAL OF E-SCIENCE
July 2020

doi.org/10.1016/j.future.2020.07.007

COMPSs Task-based Workflows Dataflows Kafka HPC Distributed Computing

THE IMPACT OF NON-ADDITIVE GENETIC ASSOCIATIONS ON AGE-RELATED COMPLEX DISEASES

Marta Guido-Martínez, Ramon Amela, et al.
BiorXiv
May 2020

biorxiv.org/2020.05.12.084608

COMPSs Guidance HPC Distributed Computing

AUTOPARALLEL: AUTOMATIC PARALLELISATION AND DISTRIBUTED EXECUTION OF AFFINE LOOP NESTS IN PYTHON

Cristian Ramon-Cortes, Ramon Amela, Jorge Ejarque, Philippe Clauss, Rosa M Badia
THE INTERNATIONAL JOURNAL OF HIGH PERFORMANCE COMPUTING APPLICATIONS (IJHPCA)
July 2020

doi.org/10.1177/1094342020937050

PyCOMPSs PLUTO Automatic Parallelization HPC Distributed Computing

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 E-SCIENCE 2018
September 2018

doi.org/10.1109/eScience.2018.00135

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