

# Curriculum Vitae - Sergio Castro

September 2023

## Professional Objective

Applied research in advanced Software & Data engineering techniques.

## Personal Data

**Last Name:** Castro  
**First Name:** Sergio  
**Mobile:** (+32) 4 85 93 46 59  
**E-mail:** sergioc78@gmail.com  
**Nationality:** Belgian / Ecuadorian (dual citizenship).  
**Place of residence:** Brussels, Belgium.  
**Research Portfolio:** <http://sergio-castro.github.com/>  
**Programming Portfolio:** <https://github.com/sergio-castro/>

## Education

### Post-Graduate Studies

Université catholique de Louvain (UCL) Louvain-la-Neuve – Belgium  
**PhD. in Engineering Sciences. Computer Science.**  
2014

Vrije Universiteit Brussel (VUB) Brussels – Belgium  
Ecole des Mines de Nantes (EMN) Nantes – France  
(double diploma program)  
**Master of Science in Computer Science:** “ *European Master in Object-, Component-, Aspect-, Oriented Software Engineering Technologies (EMOOSE)*”.  
Mention: Great Distinction.  
2006

Ecole des Mines de Nantes Nantes – France  
**Certificate of specialised formation in the field of Computer Science.**  
2006

### Engineering Studies

Escuela Superior Politécnica del Litoral (ESPOL) Guayaquil – Ecuador  
**Engineering degree** in Electricity and Computer Science.  
Specialisation in Information Technology Systems (ITS).  
2004

## Research Work

### PATENTS

Named inventor on a US patent application filed by Colibra NV (High level topic is related to new innovative techniques for Data Classification. Confidential period still in progress).

S. Castro. Colibra NV. Patent. (April, 2022).

## ARTICLES IN SCIENTIFIC MAGAZINES

S.CASTRO, K. MENS & P. MOURA. *Automatic Integration of Hybrid Java-Prolog Entities with LogicObjects*. Association for Logic Programming (ALP) Newsletter. Out of Left Field track. V. 27 N. 4. December Issue. 2014.

## JOURNALS

S. CASTRO, K. MENS & P. MOURA. *JPC: A Library for Categorising and Applying Inter-Language Conversions Between Java and Prolog*. Science of Computer Programming: Experimental Software and Toolkits (EST 6). Elsevier North-Holland, Inc. (Under Evaluation).

S. CASTRO, C. De ROOVER, A. KELLENS, A. LOZANO & K. MENS. *Diagnosing and Correcting Design Inconsistencies in Source Code with Logical Abduction*. Science of Computer Programming: Special Issue on Software Evolution, Adaptability and Variability. V. 76 N. 12 P. 1113-1129. Elsevier North-Holland, Inc. 2011.

J. BRICHAU, A. KELLENS, S. CASTRO & T. D'HONDT. *Enforcing Structural Regularities in Software using Intensive*. Science of Computer Programming: Experimental Software and Toolkits (EST 3). V. 75. P. 232-246. Elsevier North-Holland, Inc. 2010.

## CONFERENCES AND SYMPOSIUMS

S.CASTRO, K. MENS & P. MOURA. *Customisable Handling of Java References in Prolog Programs*. Proceedings of the International Conference on Logic Programming (ICLP). Technical Communication. Computing Research Repository (CoRR). V. abs/1405.2693. Vienna, Austria. 2014.

S.CASTRO, K. MENS & P. MOURA. *LogicObjects: Enabling Logic Programming in Java Through Linguistic Symbiosis*. Proceedings of the 15th International Symposium on Practical Aspects of Declarative Languages (PADL). V. 7752. P. 26-42. Springer Berlin Heidelberg. Rome, Italy. 2013.

S. CASTRO, J. FABRY, K. MENS & T. D'HONDT. *A Unified Mechanism for Improving Advanced Transaction Management in Web Services*. International Conference of the Chilean Computer Science Society (SCCC). P. 30-39. Chilean Society of Computer Science. Iquique, Chile. 2007.

## PUBLISHED WORKSHOP PAPERS

S. CASTRO. *LogicObjects: A Portable and Extensible Approach for Linguistic Symbiosis between an Object-Oriented and a Logic Programming Language*. International Conference on Logic Programming (Doctoral Consortium). Theory and Practice of Logic Programming (TPLP). Special Issue 04-05. V. 13. Istanbul, Turkey. 2013.

S. CASTRO, K. MENS & P. MOURA. *LogicObjects : A Linguistic Symbiosis Approach to Bring the Declarative Power of Prolog to Java*. Proceedings of the Workshop on Reflection, AOP and Meta-Data for Software Evolution (RAM- SE'12). Co-located with the European Conference in Object-Oriented Programming (ECOOP). P. 11-16. Beijing, China. 2012.

S. CASTRO, S. GONZALEZ, K. MENS & M. DENKER. *DynamicSchema: A Lightweight Persistency Framework for Context-Oriented Data Management*. Proceedings of the Workshop on Context-Oriented Programming (COP'12). Co-located with the European Conference in Object-Oriented Programming (ECOOP). Beijing, China. 2012.

S. CASTRO, A. KELLENS, C. De ROOVER & K. Mens. *Generation and Composition of Corrective Actions to Structural Design Problems in Code with Heal*. Proceedings of the 9th Belgian-Netherlands Software Evolution Seminar (BENEVOL), Lille, France. 2010.

J. BRICHAU, A. KELLENS, S. CASTRO & T. D'HONDT. *Enforcing Structural Regularities in Software using Intensive*. International Workshop on Advanced Software Development Tools and Techniques (WASDeTT 2008). Co-located with the European Conference in Object-Oriented Programming (ECOOP). Paphos, Cyprus. 2008.

S. CASTRO, J. BRICHAU & K. MENS. *Diagnosis and Semi-automatic Correction of Detected Design Inconsistencies in Source Code*. Proceedings of the International Workshop on Smalltalk Technologies (IWST). Brest, France. 2009.

S.CASTRO, K. MENS & J. BRICHAU. *Towards a Taxonomy of Tools for Documenting Code Design*. Proceedings of the workshop on Query Technologies and Applications for Program Comprehension (QTAPC). Co-located with the IEEE International Conference on Program Comprehension. (ICPC). Amsterdam, The Netherlands. 2008.

## Dissertations

### PhD thesis

*A Portable Approach for Bidirectional Integration between a Logic and a Statically-Typed Object-Oriented Programming Language.*

Université catholique de Louvain, Belgium. September 2014.

Promoter: Prof. Dr. Kim Mens.

### Master thesis

*ACTA Dependencies as a Unified Mechanism for Compensation, Activities Synchronization and Functional Replication in BPEL4WS.*

Vrije Universiteit Brussel, Belgium. August 2006.

Promoter: Prof. Dr. Theo D'Hondt. Advisor: Prof. Dr. Johan Fabry.

Score: 18/20.

### Engineering thesis

*Analysis, Design and Implementation of a Code Generator System for the Interpretation of Distinct Call Detail Records (CDRs) Formats.*

Escuela Superior Politécnica del Litoral, Ecuador. December 2004.

Promoter: Prof. Dr. Xavier Ochoa.

This software was conceived as the initial module of a complex Convergent Mediation system and was successfully deployed in an Ecuadorian Telecom company. The main technologies involved in the system were Java and XML related specifications.

Score: 10/10.

## Professional Experience

### From November 2018 to the present.

Collibra ([www.collibra.com](http://www.collibra.com)) Belgium).

Backend Software Engineer.

#### Achievements:

- During my first year paired up with the CICD team to improve on the overall build times of the Collibra product. Worked directly with Gradle Inc. to do that (partnered among others with *Rooz Mohazzabi* from Gradle). Demonstrated with numbers that build times could be reduced by more than 30% if we buy a Gradle Enterprise license, which we did.
- Obtained the first 3 Collibra certifications towards the Collibra Ranger (the fourth one is the Ranger level itself).
- In all my time at Collibra I have had an active participation in the design and implementation of several products related to *Data Catalog*. Including: *Data Ingestion* (meta-data ingestion of data-sources), *Data Profiling* (descriptive statistics) and *Data classification*.
- *Collibra Hackathon 2022*: My work on Data Classification was the only one selected for IP development. A patent was filed with me as the only named patent author.
- *Collibra Hackathon 2023*: Finalist among three teams out of almost 30 team participants (top 10%).
- *Collibra Praxis 2024*: The Collibra Praxis program goal is to do research on promising AI related topics. During that time (few weeks), selected engineers are completely focused on applied research. One of my ideas related to innovative classification of data was chosen for this program.

### From July 2015 to September 2018.

TomTom (<http://www.tomtom.com>). Belgium.

Expert Software Engineer.

*Responsibilities:* I had the privilege to work on core components of the TomTom map making process such as Quality Assurance, Workflow Management and Model Transformations. On top of this, I planned and organized international workshops intending to increase the collaboration between leading European research institutions and TomTom teams in distinct geographical locations.

I also actively participated in the learning & knowledge sharing efforts inside the company (organization of brown-bag sessions, tutorials, world-class invited speakers, etc) and served as a TomTom reviewer for the ITS congress (<https://itsworldcongress.com/>).

*Programming languages and platforms:* Java ecosystem, Hadoop, Elasticsearch, Kafka, Zookeeper, Activiti, Docker, among many others.

#### **From September 2008 to September 2014**

Université catholique de Louvain, Belgium. (<http://www.uclouvain.be/en-icteam.html>).

*Role:* Teaching and research assistant (**from 2007 to 2008** I had an academic grant).

*Responsibilities:* Ranged from developing and supervising exercises in situ for the students to the design and evaluation of homeworks and major projects.

The courses where I was assistant were part of the bachelor (in French) and master (in English) programs. They typically had 20 to 50 students registered.

*Covered subjects:* software metrics, logic programming, object-oriented programming design and implementation, requirements engineering, data structures and databases.

*Programming languages and platforms:* Smalltalk (Pharo and VisualWorks), Java, Android, and web development technologies.

#### **From December 2006 to February 2007**

Inter-American Center of Tax Administrations, Panama (<http://www.ciat.org/in/index.asp>).

*Role:* Software consultant (programmer).

*Project goal:* Last stage of the implementation of a Customs software system for the Guatemala Government. Accelerated software development program.

*Technologies involved:* the project was related to JEE technologies and frameworks, Workflow Management and Business Document Administration.

#### **From February 2002 to December 2004**

Yoveri S.A., Ecuador (<http://yoveri.com/>).

*Role:* Due to the outsourcing nature of this Ecuadorian company, I was involved in the design and implementation of software solutions for several Ecuadorian enterprises (mainly T<sub>ELECOMS</sub>), some of them were:

##### **L<sub>INKOTEL</sub> S.A. (from February 2004 to December 2004)**

Implementation of a code generator system for the interpretation of distinct Call Detail Records (CDRs) formats. Since my employer and my university had cooperation programs, I developed this system both as part of my professional work and as my engineering thesis.

##### **C<sub>ONECEL</sub> S.A. (from October 2002 to January 2004)**

Technical analysis, implementation leader and software cycle support for a CRM system based in N layers architecture. The involved technologies were: Oracle 9i Data Base and an OracleAS10G Application Server. The system was based on the JEE specification.

##### **P<sub>ACIFICTEL</sub> S.A. (from February 2002 to September 2002)**

Implementation of billing applications using technologies and products related to Oracle like O<sub>RA</sub>-C<sub>LE DEVELOPER</sub> 6i and O<sub>RA</sub>-C<sub>LE DESIGNER</sub>. The work also involved the manipulation of huge volumes of data using PL/SQL programming and the development of C software modules.

## Grants

DESAFIOS scholarship (<http://www.becadesafios.com>).

Scholarship offered to Latin American engineers to take part in Master degree programs in Europe.

Covered: EMOOSE master training tuition fees (10000 Euros).

Grant on the MoVES project sponsored by the Belgian Science Policy.

(<http://www.belspo.be/belspo/fedra/proj.asp?l=en&COD=P6/39>).

Covered: First fifteen months of my doctoral training.

## Languages Competences

**English:** Fluent (English spoken at home).

**Spanish:** Native.

**French:** Advanced reading skills. Upper-intermediate written and oral communication. (French speaking working environment at the UCL).

## Other Competences

- Strong background in software engineering in general and object-oriented programming in particular.
- Genuinely passionate and curious about software engineering research.
- Experience in several programming languages: Java, Smalltalk, Prolog, Logtalk, SQL, JavaScript. Some knowledge of Scala and previous experience (may need refreshing) in C, C++, PL/SQL.
- Quick learner of new programming languages and programming paradigms.
- Persistence, enthusiasm and imagination in solving nontrivial unstructured problems.
- Well-travelled international background and being used to work in a multi-cultural heterogeneous environment.

## Personal Interests

I am often enthusiastic about backpacking and exploring the world. Interacting with new cultures and learning about different ways of perceiving life and interpreting reality are among my most valued memories.

## References

*Aart Kuijken* (my former manager at TomTom)

Team Lead R&D Barco

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URL: <https://www.linkedin.com/in/aart-kuijken-3bb3305>

*Ralph Roef*

Principal architect at TomTom

E-mail: [ralph.roef@tomtom.com](mailto:ralph.roef@tomtom.com)

URL: <https://www.linkedin.com/in/ralph-roef-11667a2>

*Prof. Dr. Kim Mens* (PhD advisor)

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URL: <http://www.info.ucl.ac.be/~km>

*Dr. Jan Wielemaker* (member of my PhD jury)

SWI Prolog author

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URL: <http://www.swi-prolog.org>