



# Bruno Medeiros

## About me

Experienced Java, AspectJ and C developer that has been working for several years implementing High Performance Computing solutions. Currently seeking to embrace a new career challenge in the fields of Parallel/Distributed Computing and Big Data.

Being a passionate Software Engineer, I am enthusiastic about the emerging technologies in the Parallel and Distributed Computing fields. I have also interest in learning and applying the best practices of robust Software Design and Patterns. I consider myself being a pragmatic and goal driven professional, and also a fast learner with good communication skills.

Next I present the list of my key technologies: **JAVA** (concurrency), **AspectJ**, **C**, **MPI**, **OpenMP**, **CUDA**, shared and distributed memory programming taking advantage of clusters of multi-core machines.

I have also experience working with **Database Management Systems**, **UML** modeling and several programming languages such as **Haskell**, **Prolog** and **Python**. You can find more information about me in my **homepage**, which includes also links to my linkedin, stackoverflow, coursera and github accounts among others.

## Experience

Sep 2012– Jan 2017 **Java/AspectJ Software Developer**, CONTRACT BY THE FOUNDATION FOR SCIENCE AND TECHNOLOGY, Braga.

Briefly I worked with:

- Java/ AspectJ to code the Framework;
- Java Concurrency, C, OpenMP, MPI, Bash-script and CUDA, to run and test the parallel algorithms;
- Cluster of multi-core machines (e.g. NUMA and SMP machines) and with high performance parallel/distributed computing.

Responsible for building the parallel high performance JAVA framework of the **GAsPar Project**, including the designing solution, coding, testing and validation processes. The framework is divided in two libraries (shared memory and distributed memory) that allow users to run their sequential code in parallel, in heterogenous clusters of multi-core machines. The framework is non-invasive, thus parallel code is not introduced directly in the source code, promoting incremental and independent development. This framework is able to scale some algorithms up to 16 machines with 32 cores each (up to 512 cores) and achieve competitive performance comparing with hand made implementations (overhead lower than 3 %). The work performed during this time resulted in 6 different publications including a book chapter.

Feb 2015 - **Teacher assistance**, THE UNIVERSITY OF MINHO, Braga.

Aug 2015 Lecturing of the Computational Systems practical classes of the Computational Sciences Bachelor's. Teaching **Assembly X86** and computer architecture among others.

2013 - **C/CUDA Summer Intern**, THE UNIVERSITY OF TEXAS, Austin.

Summer Working in the HPC team of professor Keshav Pingali, implementing Metis, a graph partitioning algorithm, in **C** and **CUDA**, based on a version implemented in the Galois framework.

Feb 2013 - Jul 2013 **C Software Developer**, TECHNICAL ASSISTANT OF THE TEACHING STAFF, Braga.

Development of an automatic system for the evaluation of hundreds of C projects. Based on the **C/bash scripting**, evaluation system was able to set a standardized configuration environment where the C projects were run, their output gathered and registered, and afterwards compared with the expected results. Statistical and technical reports were also produced with quantitative measures and quantitative annotations.

Sep 2009 - Dec 2011 **Java/AspectJ Software Developer**, CONTRACT BY THE FOUNDATION FOR SCIENCE AND TECHNOLOGY, Braga.

Researcher at University of Minho under the AspectGrid project, developing:

- Checkpoint/restart approaches to fault tolerance in distributed system;
- Profiling and Run-time adaptation mechanisms.

For parallel/distributed computational environments, such as Shared Memory (SM), Distributed Memory (DM), and Hybrid SM + DM, using AspectJ. This work resulted in 4 different publications.

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## Education

- 2012–2017 **Computer Science PhD Researcher**, *The University of Minho*, Braga.  
Specialized in Parallel and Distributed Computation. With 6 publications including a book chapter.
- 2008–2011 **Master's in Engineering Informatics, Computer Science**, *The University of Minho*, Braga, *17 out of 20, class A*.  
Specialized in Business intelligence, Parallel/Distributed Computation and Software design. With 4 publications.
- 2005–2008 **B.S in engineering informatics, Computer Science**, *The University of Minho*, Braga, *15 out of 20, class A*.

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## Computer skills

- Basic PYTHON, Adobe Photoshop, HTML, CSS, PROLOG
- Intermediate BASH SCRIPTING, LaTeX, CUDA, HASKELL, C++, SQL
- Advanced JAVA, OPENMP, MPI, C, ASPECTJ

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## Online Coursera Courses

- Heterogeneous Parallel Programming;
- Games without Chance: Combinatorial Game Theory;
- Algorithms: Design and Analysis;
- Competitive Strategy;
- An Introduction to Interactive Programming in Python;
- Introduction to Logic;
- Games without Chance: Combinatorial Game Theory;
- Social Psychology;
- Advanced Competitive Strategy;
- Data Science course : The Data Scientist's Toolbox;
- \* Getting and Cleaning Data;
- \* R Programming;
- \* Exploratory Data Analysis;
- \* Reproducible Research and Statistical Inference.

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## Miscellaneous

- Dec 2010 – Mar2011 **Volunteer Tutor**, *ANEIS*, Braga.  
Working as a programming tutor of gifted children.
- Jul 2009 **Invigilator**, *British Council*, Porto.  
Working as an english exam invigilator.
- Sep 2004, **Invigilator**, *Azores University*, Azores.
- 2005 and 2006 Handling of a GPS controller used in a PhD thesis.
- 2004 - 2006 **Fixing Computers**, *Freelancer*, Azores.  
Fixing computers (software) and assembling computers.
- Jul 2003 - Sep 2003 **Check-in controller**, *SATA*, Azores.  
Giving instructions to passengers at the check-in area.
- Jul 2002 - Sep 2002 **Survey worker**, *Regional Directorate of Employment*, Azores.  
Asking people to fill surveys for statistical purposes.
- Jul 2001 - Sep 2001 **Survey worker**, *Regional Directorate of Employment*, Azores.  
Asking people to fill surveys for statistical purposes.

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## Awards

- 2013 Tecminho free course in Innovation and Entrepreneurship
- 2012 Foundation for Science and Technology PhD Scholarship
- 2011 Informatics Department Master's Scholarship
- 2009 Informatics Department B.S Scholarship

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## Languages

- Portuguese **Mothertongue**
- English **C1** *Advanced English 2 : Council of Europe Level C1+ at British Institute of Braga*
- German **B1** *B1 Certificate in German at British Institute of Braga obtaining class B+*
- Spanish **Basic** *Able to understand simple texts and conversations*

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## Interests

- Piano, Pool, Chess, Free online Courses and Traveling.