

Toni Sagristà Sellés – Software Engineer and M.Sc. in Astrophysics

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Professional Experience

- **November 2013 – currently** **Astronomisches Rechen-Institut**
 - CU9 Support for the scientific exploration of the Gaia data as well as its electronic publication. Support for the Gaia data visualisation and public outreach.
- **December 2011 – November 2013** **IEEC/ICC/UB**
 - Gaia ESA's mission Gaia is an astrometry satellite to observe ~1-2 billion stars.
 - GASS project Analysis, implementation and testing of the GAia Systems Simulator, which simulates the telemetry stream of Gaia. Also, profiling and optimisation of GASS using memory caches. Parallelization of code to get a speed-up of up to 60% in Marenostrum supercomputer.
 - TMV project Analysis, design and implementation of the TeleMetry Validator of GASS and Gaia using pure Java, Python, shell scripting and various plotting libraries.
 - Others Implementation of other pieces of software such as the GbinConverter, the IntervalUtils, the SkyPlotter or the HTMGenerator.
- **February 2010 – December 2011** **Galaxy Formation Group/ICC/UB**
 - AMIGA Design and development of the AMIGA cosmological semi-analytic model front end for external use, under the supervision of Dr. E. Salvador. Use of GWT and development of own widgets and extensions.
 - Data module Design of the scientific data management module, a software layer dealing with huge amounts of cosmological data.
- **September 2007 – January 2010** **Justinmind SL**
 - Generation API Lead manager and analyst of HTML and web application generation API.
 - Usernote Design and development of Justinmind Usernote, the front end to the generation API.
 - Prototyper Design and development support to the Justinmind Prototyper team.
- **October 2005 – January 2007** **Justinmind SL**
 - Document management Design and development of a fully-featured document management system using Struts, Hibernate, Lucene and jBPM.
 - Justinmind incubator Design and development of several products in their incubation stage, such as the Justinmind user management.
 - Generation core Design and development of the application generation core in use in the Justinmind Usernote and Justinmind Prototyper.

Education

- **February 2010 - September 2011** M.Sc. in Astrophysics, Particle Physics and Cosmology
[Universitat de Barcelona/Department of Astronomy](#). ISCED 6. Qualification: 90/100.
Awarded the *M.Sc. Honours Certificate* of the faculty of physics in 2011 for the my M.Sc. thesis, performed unde the supervision of Dr. E. Salvador.
- **January 2007 - July 2007** Single Honours Project
[University of Aberdeen/Computing Science Department](#) (UK).
Project *Computer-aided catalan learning application*, founded on the grounds of Natural Language Processing (NLP) developed under the supervision of Dr. E. Reiter. Awarded with the qualification of *First Class Project*.
- **September 2004 - June 2005** Erasmus year
[University of Reading/School of Systems Engineering](#) (UK).
E-business, Informatics for e-enterprise, Cybernetics and its applications, Commercial off-the-shelf software, Graphical user interfaces, Virtual reality.
- **September 2001 - June 2007** B.Sc. in Informatics Engineering
[Universitat Politècnica de Catalunya/FIB](#). ISCED 6. Qualification RD 1044/2003: 1,937.
Some of the topics covered are HPC (High-performance computing), software engineering and information systems, fundamentals of computing, data management, system interfaces and integration, advanced programming techniques, telematic networks, operating systems, Engineering and engineering trades.

Technical Skills

Java and J2EE - Expert in various J2EE technologies and frameworks.

- *Application/web servers* - Tomcat, jBoss, Apache.
- *Frameworks* - Struts 1&2, Spring MVC, JSF, WebWorks, GWT, Hibernate, jBPM.
- *Libraries* - Apache commons, jetty, Eclipse GEF, GMF and SWF, libGDX, Quartz, Lucene, etc.
- *Profiling* - Eclipse MAT, VisualVM, JProfile, JProbe, jmap, jhat, jstack.

Other languages - Other languages I know and use.

- *FORTRAN* - Got to know FORTRAN well thanks to my work with the semi-analytic model AMIGA.
- *C, C++* - Some practical works done in both languages during my degree.
- *Python* - Used extensively in Gaia.
- *Shell scripting* - bash, csh.

Databases - MySQL, PostgreSQL, OracleDB, HyperSQL and specific languages like ADQL.

XML - XML, DTD, XSLT, SOAP.

Eclipse IDE - I have a profound knowledge of the Eclipse IDE as I use it as my main developing environment and used several Eclispe technologies such as GEF and GMF. Also worked with Oracle's NetBeans.

HPC - Tuning and profiling code for its execution in the supercomputers at [CESCA](#) and [BSC](#).

Android SDK - Expertise in the Android SDK. Two applications published in the Android Market (see my [portfolio](#)).

OpenGL/GLSL - Deep knowledge of the Open Graphics Library, both regular and ES versions.

L^AT_EX - I use L^AT_EX to produce technical documentation and presentations.

SVN/GIT - Knowledge of both centralized and distributed versioning systems.

Drupal & WordPress - I set up a Drupal environment from scratch to build my personal [site](#).

Web - I am proficient in web technologies.

→ *CSS3 & HTML5* - The future of the web.

→ *Javascript* - I also know well AJAX and jQuery.

→ *PHP* - I coded personal websites in PHP a while ago.

→ *Others* - Dreamweaver+VBScript+ASP and FrontPage.

NLP - 2007. Natural Language Processing knowledge, acquired developing the Honours Project in Aberdeen.

E-Business/Informatics for e-Enterprise - 2005. The University of Reading, Computer Science department.

Language skills

I can speak fluent **English** (TOEFL iBT 109/120 - 17 Dec 2011, CEFR C2 equivalent), **Spanish** and **Catalan**. I speak a little German and have some background knowledge of French.

Publications and projects

- **Computer-aided catalan learning application** - 2007, The University of Aberdeen, Computing Science Dept., degree thesis.
- **Development of the AMIGA font end for external use** - 2011, Universitat de Barcelona, Dept. of Astronomy, M.Sc. thesis.
- **Particle Physics Simulator**, Android application with +500K downloads. Get it [here](#).
- You can see my portfolio in tonisagrista.com.

Social Skills and Competences

- Teamworking. Ability to work in a multicultural environment.
- Good communication and presentation skills in both Spanish and English.
- Experience in software project management.

References

Available on request.

Last updated: November 11, 2013
<http://tonisagrsta.com/resume>