

# Alvaro Carballo Garcia

Senior programmer/Mechanical engineer | Ponferrada (Spain) – (+34)665775834 – [contact@customsolvers.com](mailto:contact@customsolvers.com)

## Summary

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Programmer with over 9 years of software development experience and a good background in physics, mathematics and mechanical engineering; excellent learner, very adaptable, with solid principles and humour enjoyer.

Specialities:

- From-scratch development of efficient algorithms accounting for data-intensive situations.
- Improvement of existing pieces of software.

## Experience

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### Self-employed (commercial name: Custom Solvers 2.0)

October 2015 - Present

Ponferrada, Spain (remote work) – Custom software development

- [After a personal realisation](#), I decided to restart my activity as a self-employed engineer/programmer [under notably different conditions](#).
- I have developed my two websites completely from scratch and by mostly relying on PHP: [customsolvers.com](http://customsolvers.com) (basic information; in both English and Spanish) and [varocarbas.com](http://varocarbas.com) (public R&D activity; mostly in English). The ongoing [web domain ranking](#) is perhaps the most descriptive resource about my current public online activity.
- I have started my biggest open-source development so far: [FlexibleParser](#), a comprehensive (C#; .NET 4.0) parsing library formed by independent parts; at the moment, [UnitParser](#), [NumberParser](#) and [DateParser](#). Its code is stored in [the FlexibleParser repository of my GitHub account](#) and analysed in the corresponding [varocarbas.com](#) sections ([UnitParser](#), [NumberParser](#) and [DateParser](#)). I am also currently working on the migration of all the [FlexibleParser parts to Java](#).
- [QuickSearch](#) is perhaps the most relevant outcome of the (over-)optimising attitude intrinsically associated with the aforementioned [varocarbas.com](#) domain ranking. This efficient piece of software (fully developed in pure C) is expected to perform notably faster than conventional databases by mostly focusing on a subset of relatively simple actions (e.g., string-field searches). Although its main code isn't public, I am including some of its accessory methods in [a repository of my GitHub account](#).
- As clearly highlighted in different places (e.g., [current staff page in customsolvers.com](#)), I am the sole author of each single bit associated with Custom Solvers 2.0 (or [varocarbas](#), my personal nickname since quite a few years ago). Note that the main goal of my online activity is to provide a comprehensive picture about my skills, attitude at work and even personality.

### Self-employed (commercial names: trendingIT and Custom Solvers)

October 2008 - October 2013

Ponferrada, Spain (remote work) – Custom software development

- Development of a wide variety of custom software applications.
- Improvements in different aspects of existing pieces of software.
- Data/numerical modelling and mathematical analysis under a wide variety of different conditions.
- Additional tasks associated with managing, promoting and funding a small business without relevant resources.
- Online references: [trendingIT in customsolvers.com](#) and [Custom Solvers 1.0 in customsolvers.com](#).

### Simulation engineer

July 2006 - July 2008

Reaction Engineering Solutions (now: CMCL Innovations) – Cambridge, UK – IC-engine modelling

- Awarded with an EU grant ("Becas Argo") to work as a trainee simulation engineer (6 months).

- Close collaboration with the University of Cambridge (CoMo Group, headed by Dr. Markus Kraft).
- Typical tasks of an IC-engine simulation engineer.

## Education

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### **BEng in Mechanical Engineering**

October 2002 - July 2005

University of Oviedo – Spain

- Subjects of interest: thermodynamics, structural mechanics, mechanical design.
- Ranked within the top 2% in a class of 300.
- My actually relevant university degree, where I found my true calling (i.e., engineering and programming).

### **MS in Law**

October 1996 - June 2002

University of Oviedo – Spain

- Exchange student at the Westfälische Wilhelms-Universität, Münster, Germany (1999-2000).
- Almost anecdotal degree. I never liked law and my professional career has been fully focused on engineering and programming.

### **MEng (4<sup>th</sup> & 5<sup>th</sup>) in Industrial Engineering (Energy)**

October 2005 - June 2007

UNED – Spain – Incomplete

- Subjects of interest: nuclear engineering, IC engines and turbines.
- Not completed because of non-academic reasons (i.e., too expensive and time-consuming “hobby”).

## Skills & Expertise

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### **Programming languages & databases**

- C# & VB.NET (all .NET versions), Winforms, Console, Library, WPF, ASP, Silverlight – VBA – VB6
- PHP – C – Java – SQL Server – MySQL
- Fortran (77, 90) – Various C-based languages (C++, Perl) – JavaScript – PostgreSQL – Python

### **Software**

- MS Windows (all versions) – MS Office – Adobe Utilities
- Visual Studio (all versions since 2008)
- Linux – Apache – XAMPP – Cygwin – NetBeans – Eclipse – Azure – AutoCAD
- Mathematica – MATLAB – LaTeX – Compaq Visual Fortran

### **Miscellaneous**

- Custom software development and from-scratch algorithm building.
- Corrections and performance improvements in existing pieces of software.
- Numerical modelling and data analysis for a wide variety of scenarios.

## Languages

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**Spanish** (mother tongue) – **English** (fluent) – **German** (basic)

## Online References

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<https://customsolvers.com/> (basic information) – <https://varocarb.com/> (public R&D activity)