Miguel González Cuadrado

Modeling & Simulation
Aerospace Engineering
Object-Oriented Programming
C++, Ada, Lisp, LaTeX
UNIX, GNU/Linux
Effective Communicator

E.U. citizen, born 1973
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Elegance is not a dispensable luxury but a quality that decides between success and failure. — Edsger W. Dijkstra

Education

1998 **MS in Aerospace Engineering**, *UPM (Universidad Politécnica de Madrid)*, Madrid, Spain.

1991 **Mathématiques Supérieures**, *Lycée Pierre de Fermat*, Toulouse, France.

Experience (main duties and achievements)

2004–2009 **Modeling & Simulation: Expert and Technical Manager**, *Indra Sistemas**.
In charge of flight model and systems for helicopter simulator programmes.
Leadership; technology R&D; promoting technical advancement company-wide.
Mentoring; technical development and promotion of people.
Technical support for sales activities.
Senior Expert since 2008.

2000–2004 **Modeling & Simulation: Engineer**, *Indra Sistemas**.
Introduction of object orientation for simulation in Indra.
Object-oriented C++ simulation environment.
Generic physical models and concrete parameterisations.
Helicopter flight models, level-D qualifiable.

1998–2000 **Modeling & Simulation: Junior Engineer**, *Indra Sistemas**.
Fixed-wing flight models and validation.
Physical model development and adjustment.

Languages

Native **French, Spanish.**

Fluent **English, Esperanto.**

Basic **German, Italian, Japanese.**

*http://www.indra.es

Engineering skills

General Skills and Attitude	Leadership. Research and development, technical innovation and excellence. In-house teaching. People growth, mentoring. Continuous self-education. Highly valued communication skills.
Modeling & Simulation	Object-oriented simulation environments. Generic, parameterisable physical models. Real time. Model parameterisation and tuning. Simulator validation and qualification. Integration of big simulation programmes.
Systems	System modeling. System stability. Control.
Programming Skills	Object-oriented analysis and design expert. Agile programming. Software design patterns. UML. Abstraction and generalisation. Meta-programming. Template programming. Functional programming. Programming frameworks. Building systems. Design for testing and debugging. Automatic testing and validation.
Computing Science	Algorithmics (algorithms, data structures, verification, complexity). Compiler theory. Relational data bases.
Programming Languages	C++ (recognised expert), Ada, C, Fortran, Pascal, Modula-2, Lisp, Scheme, python, bash, awk, m4, MatLab, octave.
Toolkits	OpenGL, OpenSceneGraph.
Documentation	LaTeX (advanced user), HTML, PHP.
Operating Systems	UNIX administrator (especially GNU/Linux), including shell programming. Microsoft Windows.

Interests

Programming	Elegance, simplicity, clearness, robustness. Relation and complementarity between human languages and programming languages. Computer science theory.
Typography	Typesetting, design, edition.
Languages	Human natural and constructed languages, evolution of languages, writing systems, linguistics.
Playing music	Piano, classical guitar, clarinet.

Publications*

M. González Cuadrado. A Novel Fixed-Azimuth Blade-Element Real-Time Rotor Simulation Model: FABES. *AIAA Modeling & Simulation Technologies Conference*, 2007.

M. González Cuadrado. The *cppfunct* library: real-time function objects in C++. *Sourceforge*, 2009.

*http://www.mgcuadrado.com/bio.html