

CURRICULUM VITÆ

FERNANDO GONZÁLEZ DEL CUETO

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EDUCATION

- 10/2004-08/2008 Ph.D. in Computational and Applied Mathematics (CAAM), Rice University, Houston, TX. Thesis: *Filtering Random Layering Effects for Imaging and Velocity Estimation*. Committee: Liliana Borcea, William Symes, and Daniel Mittleman. Degree conferred on January 30th, 2009.
- 08/2002-10/2004 M.A. in Computational and Applied Mathematics (CAAM), Rice University, Houston, TX. Thesis: *Wave propagation in randomly-layered media with an application to time-reversal*; Supervisor: Prof. Liliana Borcea. Degree conferred on January 25th, 2005.
- 08/1995-02/2000 Undergraduate Studies equivalent to a B.A. degree in Applied Mathematics. *Licenciatura en Matemáticas Aplicadas, Instituto Tecnológico Autónomo de México (ITAM)*, Mexico. Graduated with honors: *Mención Especial*. Minor in numerical optimization and statistics. Thesis: *Interior point methods for linear and quadratic programming*. Supervisor: Prof. José Luis Morales Pérez.
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WORK EXPERIENCE

Since Oct 27, 2008 *Shell International Exploration & Production, Houston, TX.*

Conducting postdoctoral-level research in problems related to potential fields, remote sensing, and geophysics. Improving current and developing novel mathematical models and algorithms to solve inverse problems including: localizing gravitational and magnetic sources using spectral information; hyperspectral imaging, discrimination and detection of hydrocarbon seeps; inversion of advection-diffusion processes to estimate the location of emissive sources.

Summer 2006 *Shell International Exploration & Production, Houston, TX.*

Worked on the development and design of spectral methods for the depth estimation of gravitational and magnetic sources. Implemented the algorithms in Matlab.

2002 *Primma Consulting, Madrid, Spain.*

Designed and implemented an web-based survey and statistical analysis system for Bristol-Myers-Squibb Latin America. Primary computer tools used: XHTML/CSS, VB/ASP, Javascript, and Microsoft Access.

2001 *Grupo SIASA, Mexico City.*

Program and database design and implementation of inventory management and optimal computer-assisted quoting system. Main computer tools used: Visual Basic/ASP, Javascript, and Microsoft Access.

Summer 1995 *Diagnóstico y Desarrollo, S.A. de C.V., Mexico City..* Computer programming: Built Visual Basic applications and interfaces driven by Microsoft Access databases.

PUBLICATIONS

Borcea, González del Cueto, Papanicolaou, Tsogka, *Filtering deterministic layering effects in imaging*. SIAM Multiscale Model. Simul., Vol7, No 3, 2009, pp. 1267–1301.

Borcea, González del Cueto, Papanicolaou, Tsogka, *Filtering random layering effects in imaging*. Submitted to SIAM Multiscale Model, May 2009.

COMPUTER SKILLS

Languages: Good working knowledge and experience with MATLAB, C, Microsoft Visual Basic, HTML/CSS, and L^AT_EX. Some exposure to C++, ENVI, AMPL, Fortran, XML, and Lisp.

Operating systems: UNIX systems (Linux, Solaris, etc), Mac OS X and Windows 9X/NT/XP/Vista.

Statistics software: Experience working with packages such as SPSS, Statgraphics, Minitab, and SPlus.

Databases: SQL language, ADO, ODBC and Microsoft Access.

Other: Extensive use of Microsoft Office suite (Word, Powerpoint, Excel, Access, Visio, etc). Programming extensions of Office via VBA.

LANGUAGE KNOWLEDGE

Spanish (native), English, and French.

ACADEMIC EXPERIENCE

Fall 2003 & Spring 2005: Teaching assistant (TA) of CAAM 336, *Differential Equations*.

Spring 2003 & Fall 2004: Grading assistant of CAAM 336, *Differential Equations*.

Spring 2003: Grading assistant of CAAM 336, *Differential Equations*.

Fall 2002: Grading assistant of CAAM 378, *Introduction to Operations Research and Optimization*.

1999 Computer programming teacher at *Bachillerato Alexander Bain*. High-school level. Mexico City, Mexico.

HONORS, GRANTS

- Doctorate work partially funded by the Office of Naval Research (grant N00014-05-1-0699) and by the National Science Foundation (grants DMS-0604008, DMS-0305056, and DMS-0354658).
 - Graduated with honors – “*Mención Especial*”, ITAM, 2001.
 - Grant from *Consejo Nacional de Ciencia y Tecnología* (Mexican equivalent to the National Science Foundation) Mexico. Project 25710-A: *Theory, software and algorithms for large-scale optimization problems*, 2000-2001.
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EXTRACURRICULAR ACTIVITIES

2004–2006 Treasurer of the SIAM (Society for Industrial and Applied Mathematics) Student Chapter at Rice University.

2004–2005 Representative of the department of CAAM at the Rice University Graduate Student Association (GSA).

Painting, drawing and playing classical piano.

REFERENCES

The following are familiar with my professional qualifications and my character:

Prof. Dr. Liliana Borcea	Prof. Dr. Richard Tapia
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