

# Fernando Guevara Vasquez

CAAM Department - Rice University, 6100 Main St. - MS 134, Houston TX 77005-1892.  
Office: 713-348-5059, Home: 713-942-7304, E-mail: fguevara@caam.rice.edu

## EDUCATION AND QUALIFICATIONS

---

**Aug 2001 - to date** CAAM Dept., Rice University Houston, Texas  
PhD candidate in Computational and Applied Mathematics.

**Thesis subject:** Optimal parameterization of ill-posed inverse problems arising from elliptic partial differential equations. **MA degree conferred:** May 2005. **PhD degree expected:** August 2006.

**Sep 1997 - June 2000** ENSEEIHT Toulouse, France  
(National Polytechnic Institute of Engineering in Electrotechnology, Electronics, Computer Science, Hydraulics and Telecommunications)  
Engineering degree in Computer Science and Applied Mathematics, with honors.

**Oct 1999 - June 2000** ENSEEIHT Toulouse, France  
Preparatory courses in Systems Programming for research (DEA - Programmation et Systèmes).

**Sep 1995 - June 1997** CPP Toulouse, France  
Cycle Préparatoire Polytechnique: Preparatory classes for Entrance Examination to French National Engineering Schools (Grandes Ecoles).

**June 1995** French School of San Salvador San Salvador, El Salvador  
High School Diploma in Natural Sciences (Baccalauréat S), option Mathematics, with honors.

## WORK AND RESEARCH EXPERIENCE

---

**Jan 2006 - May 2006** CAAM Dept., Rice University Houston, TX  
Instructor for introductory level partial differential equations class (CAAM 336, 10 students).

**May 2005 - Aug 2005** Schlumberger-Doll Research Boston, MA  
Research internship.

**Aug 2002 - Dec 2002** CAAM Dept., Rice University Houston, TX  
Teaching assistant for an undergraduate level linear algebra class (CAAM 335, 80 students).

**Aug 2000 - July 2001** CERFACS Toulouse, France  
Full time developer for the MPI based PALM data assimilation library.

**Sep 1999 - July 2000** CERFACS Toulouse, France  
Research internship on domain decomposition for the solution of partial differential equations.

## PUBLICATIONS AND OTHER CONTRIBUTIONS

---

- L. Borcea, V. Druskin, F. Guevara Vasquez, *Electrical Impedance Tomography with Circular Planar Graphs*, in preparation.
- L. Borcea, V. Druskin, F. Guevara Vasquez, *Non-linear preconditioning of a one-dimensional inverse spectral problem*, in preparation.
- L. Giraud, F. Guevara Vasquez, R. Tuminaro, *Grid transfer operators for highly variable coefficient problems in two-level non-overlapping domain decomposition methods*, Numerical Linear Algebra with Applications, 10 (2003), no. 5-6, 467–484.
- L.M. Carvalho, L. Giraud, G. Meurant, *Local preconditioners for two-level non-overlapping domain decomposition methods*, Numerical Linear Algebra with Applications, 8 (2001), no.4, 207–227. (collaborated in performing the numerical experiments)

## PRESENTATIONS

---

<b>April 2006</b>	AMS Southeastern Meeting	Miami, FL
	Electrical Impedance Tomography with Circular Planar Graphs	
<b>March 2006</b>	Progress in Electromagnetics Research Symposium (PIERS)	Cambridge, MA
	Electrical Impedance Tomography with Circular Planar Graphs	
<b>Nov 2005</b>	Schlumberger	Sugarland, TX
	Optimal grids for the Electrical Impedance Tomography problem.	
<b>Aug 2005</b>	Schlumberger-Doll Research	Ridgefield, CT
	Optimal grids for the forward and inverse Electrical Impedance Tomography problem.	
<b>May 2004</b>	SIAM Imaging Science Conference	Salt Lake City, UT
	On the Convergence of Discrete Inverse Sturm-Liouville Problems on Finite Difference Optimal Grids.	
<b>March 2004</b>	CAAM Graduate seminar	Houston, TX
	An inversion algorithm for Inverse Sturm-Liouville problems.	

## COMPUTER SKILLS

---

**Languages:** Good working knowledge and experience in structured (C, F90, PERL, ...) and object oriented (C++, JAVA, ...) programming.

**Operating Systems:** Advanced knowledge of UNIX systems and Windows.

**Parallel Computing:** Extensive experience with MPI on a variety of supercomputing platforms.

**Software:** LaTeX, MsOffice, HTML publishing, Matlab, ...

## OTHER INFORMATION

---

**French/Spanish:** bilingual.

**Non-Academic activities:**

- Vice-president of the Rice Univ. SIAM student chapter (Aug 2004 - May 2006).

**Awards:**

- **2004,2005:** Recipient of the Tietze Fellowship at Rice University.
- **2004:** Michael Pearlman award at Rice University, for service to fellow students in information technology.
- **1998,1999:** Best GPA out of 80 students in ENSEEIHT.
- **1995,1996:** Best GPA out of 36 students in CPP Toulouse.
- **1994,1995:** selected twice to represent El Salvador in the Latin American Mathematic Olympiads.

## REFERENCES

---

<b>Prof. Liliana Borcea</b> Associate Professor CAAM Dept. - Rice University 6100 Main St. - MS 134, Houston TX 77005-1892 USA email: borcea@caam.rice.edu phone: +1-713-348-5723	<b>Prof. William W. Symes</b> Noah G. Harding Professor CAAM Dept. - Rice University 6100 Main St. - MS 134, Houston TX 77005-1892 USA email: symes@caam.rice.edu phone: +1-713-348-5997	<b>Prof. Danny C. Sorensen</b> Noah G. Harding Professor CAAM Dept. - Rice University 6100 Main St. - MS 134, Houston TX 77005-1892 USA email: sorensen@caam.rice.edu phone: +1-713-348-5193
<b>Prof. Iain Duff</b> Parallel Algorithms Project Leader CERFACS 42, Avenue Gaspard Coriolis F31057 Toulouse Cedex 01 France email: duff@cerfacs.fr phone: +33.5.61.19.30.10	<b>Prof. Luc Giraud</b> Professor ENSEEIH 2, rue Charles Camichel, BP 7122 F31071 Toulouse Cedex 7 France email: giraud@enseeiht.fr phone: +33.5.61.58.80.45	