



Julen Alvarez-Aramberri

Currently looking for a Postdoctoral position

Working Experience

- 2016 - Present **Postdoctoral Fellow**,
Basque Center for Applied Mathematics (BCAM).
- 2011- 2015 **Ph.D. in Applied Mathematics in Co-tutelage, Cum Laude**,
University of the Basque Country (UPV/EHU) and University of Pau (UPPA) - INRIA (MAGIQUE3D),
Supervisors: David Pardo (Ikerbasque) and H el ene Barucq (INRIA),
Title: *hp*-Adaptive Simulation and Inversion of Magnetotelluric Measurements.
- 2009 - 2011 **Junior Researcher**,
Basque Center for Applied Mathematics (BCAM),
To develop software and mathematical tools for a new algorithm for the calculation of the ampacity of a long line in collaboration with “Electrot ecnica Artech e”.
- 2009 (5 months) **Quant Internship**,
Banco Sabadell,
To develop software and quantitative tools in the Treasury Department.

Education

- 2009-2010 **Master in Mathematical Modelization, Statistics and Computation**,
University of Basque Country (UPV/EHU),
Master thesis in collaboration with “Electrot ecnica Artech e” (60 ETS).
- 2007-2009 **Master in Quantitative Finance and Banking**,
University of Basque Country (UPV/EHU) and Complutense University (UCM),
Master thesis in collaboration with “Banco Sabadell” (120 ETS).
- 2002-2007 **Bachelors Degree in Physics**,
University of the Basque Country (UPV/EHU), 2006-2007: One year at *Universit a degli Studi di Firenze* under the Erasmus Program (Florence, Italy).

Main Computer Skills

- Programming: Proficient in FORTRAN and MATLAB.
Knowledge in Python, C, MPI, OpenMP, Java, SQL, R and Visual Basic.
- Others: Knowledge in LATEX, Excel, Mathematica, Comsol, Lingo, SPSS and GAMS.
Experience with Windows and LINUX environments.
Experience on numerical simulations in computational clusters.

Languages

- Spanish **Mother Tongue**
English, Italian **Fluent**
Basque **Proficient**

Publications and Presentations

Publications

- 2016 **J. Alvarez-Aramberri** and D. Pardo. *Dimensionally Adaptive hp-Finite Element Simulation and Inversion of 2D Magnetotelluric Measurements*. Submitted to Journal of Computational Science.
- 2016 E. Gajda-Zagórska, R. Schaefer, M. Smółka, D.Pardo, and **J. Alvarez-Aramberri**. *A Multi-objective Memetic Inverse Solver Reinforced by Local Optimization Methods*. Submitted to Journal of Computational Science.
- 2015 M. Smółka, R. Schaeffer, M. Paszynski, D. Pardo and **J. Alvarez-Aramberri**. *Agent-Oriented Hierarchic Strategy for Solving Inverse Problems*. International Journal of Applied Mathematics and Computer Science, Vol. 25, No. 3, 483–498.
- 2015 D. Pardo, **J. Alvarez-Aramberri**, M. Paszynski, L. Dalcin, and V.M. Calo. *Impact of Element-Level Static Condensation on Iterative-Solver Performance*. Computers & Mathematics with Applications, Vol. 70, 2331–2341.
- 2015 **J. Alvarez-Aramberri**, D. Pardo, and H. Barucq. *A Secondary Field Based hp-Finite Element Method for the Simulation of Magnetotelluric Measurements*. Journal of Computational Science, Vol 11, 137-144
- 2015 **J. Alvarez-Aramberri**, S.A. Bakr, D. Pardo, and H. Barucq. *Quantities of Interest for Surface based Resistivity Geophysical Measurements*. Procedia Computer Science, Vol. 51, 964-973.
- 2015 E. Gajda-Zagórska, M. Smółka, R. Schaefer, D. Pardo, and **J. Alvarez-Aramberri**. *Multi-objective Hierarchic Memetic Solver for Inverse Parametric Problems*. Procedia Computer Science, Vol. 51, 974-983
- 2014 **J. Alvarez-Aramberri**, D. Pardo, and H. Barucq. *Automatically Adapted Perfectly Matched Layers for Problems with High Contrast Materials Properties*. Procedia Computer Science, Vol. 29, 970-979.
- 2013 **J. Alvarez-Aramberri**, D. Pardo, and H. Barucq. *Inversion of Magnetotelluric Measurements using Multigoal Oriented hp-Adaptivity*. Procedia Computer Science, Vol. 18, 1565-1573.
- 2012 D.Pardo, M.Paszynski, N. Collier, **J. Alvarez**, and V.M. Calo. *A survey on direct solvers for Galerkin methods*. SEMA Journal n57, 107-134.
- 2012 **J. Alvarez-Aramberri**, D. Pardo, M. Paszynski, N. Collier, L. Dalcin, and V. M. Calo. *On round-off Error for Adaptive Finite Element Methods*. Procedia Computer Science Vol. 9, 1474-1483.
- 2012 Irantzu Barrio and **J. Alvarez-Aramberri** *Al acabar la carrera, ¿qué?* Revista Pikasle Aldizkaria (Popular Science Article) ISSN 2174-9027.

Conferences

- 2015 **J. Alvarez-Aramberri**, S.A. Bakr, D. Pardo, H. Barucq, and E. Alberdi *Quantities of Interest for Surface based Resistivity Geophysical Measurements* ICCS 2015, Reykjavík, Iceland.
- 2015 **J. Alvarez-Aramberri**, D. Pardo, and H. Barucq. *Dimensionally Adaptive Simulation and Inversion of Magnetotelluric Measurements* PANACM 2015, Buenos Aires, Argentina.
- 2014 **J. Alvarez-Aramberri**, D. Pardo, and H. Barucq. *Automatically Adapted Perfectly Matched Layers for Problems with High Contrast Materials Properties* Int. Conference on Computational Science (ICCS 2014), Cairns, Australia.
- 2014 **J. Alvarez-Aramberri**, D. Pardo H. Barucq, and E. Alberdi. *Multidimensional Algorithm for the Inversion of Magnetotelluric Measurements*. 5th European Conference on Computational Mechanics (ECCM V), Barcelona, Spain.

2013 **J. Alvarez-Aramberri**, D. Pardo, and H. Barucq. *Inversion of Magnetotelluric Measurements using Multigoal Oriented hp-Adaptivity*. Int. Conference on Computational Science (ICCS 2013), Barcelona, Spain.

2012 **J. Alvarez-Aramberri**, D. Pardo, M. Paszynski, N. Collier, L. Dalcin, and V. M. Calo. *On round-off Error for Adaptive Finite Element Methods*. Int. Conference on Computational Science (ICCS 2012), Omaha, USA.

Seminars & Invited Talks

2015 **J. Alvarez-Aramberri**, D. Pardo, and H. Barucq. *Secondary Field Formulation for the Inversion of the Magnetotelluric Problem* Workshop on Advanced Subsurface Visualization Methods: “Exploring the Earth” 2015, Pau, France. (invited)

2014 **J. Alvarez-Aramberri**, D. Pardo, and H. Barucq. *Dimensionally Adaptive Inversion of the Magnetotelluric Problem* BCAM Workshop on Computational Mathematics, BCAM, Bilbao, Jul 2014. (invited).

2014 D. Pardo, **J. Alvarez-Aramberri**, V. Darrigrand, S. Bakr, and C. Torres-Verdin. *Fast Inversion of Alternate Current (AC) Geophysical Measurements* Third International Workshop On Multiphysics, Multiscale, and Optimization Problems, BCAM, Bilbao, May 2014. (invited).

2014 **J. Alvarez-Aramberri**, D. Pardo, and H. Barucq. *Automatically Adapted PML for Problems with High Contrast Materials Properties*. Third International Workshop On Multiphysics, Multiscale, and Optimization Problems, BCAM, Bilbao, May 2014. (invited).

2014 **J. Alvarez-Aramberri**, D. Pardo, and H. Barucq. *Adaptive FEMs with Electromagnetic Applications*. University of Basque Country, Bilbao, Feb 2014. (invited).

2014 **J. Alvarez-Aramberri**, D. Pardo, and H. Barucq. *Description of a Forward Magnetotelluric Problem*. AGH University of Science and Technology, Krakow, Jan 2014. (invited).

2011 **J. Alvarez-Aramberri**, E. Zuazua, and I. Garabieta. *Ampacity Calculation of Long Line Overhead Cables*. BCAM, Bilbao, Jan 2011.

2010 **J. Alvarez-Aramberri**. *Solving Mathematical Problems With Real-World Data*. MTM2008-03541 Project 2010 Edition, BCAM, Bilbao, Sep 2010.

Awards and Grants

2011 University of the Basque Country (UPV/EHU). *4 years Ph.D. grant*.

2007, 2008, 2010 Spanish Government. *Moving Allowance Fellowship to study a Master*.

2006 Spanish Government. *Erasmus Fellowship*.

2006 Bilbao Bizkaia Kutxa. *Student Exchange Scholarship*.

Additional Training and Experience

2016 Acquisition, processing, and analysis of Magnetotelluric data on Alhama de Murcia’s Fault, Lorca. Use of ADU06 and ADU07 Metronics acquisition systems.

2016 Reviewer for “Journal of Computational Science”, “Procedia of Computer Science”.

2013 Fundamentals on Antennas: The antenna as a communication system building block (30 hours). *European School of Antennas. Madrid, Spain*.

2013 Inverse Problems and Design under Uncertainty (20 hours). *León, Spain*.

2012 CSC Summer School in High-Performance Computing (6 ECTS). *Espoo, Finland*.

26-30 Apr 2010 74th European Study Group with Industry. *University of Aveiro, Portugal*.

2014 Co-organizer of the Workshop on Multiphysics, Multiscale, and Optimization Problems. *Third Edition at BCAM, Bilbao, Spain*.

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