SALVADOR FLORES

ENGINEER, PhD.

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PERSONAL INFORMATION

Full Name
Salvador Alejandro Flores Martínez

Passport No.
13.776.558-6

Birth Date
July 8, 1980

Nationality
Chilean

LANGUAGES SPOKEN

English	**French**	**Spanish**
Full Professional Proficiency	Bilingual Proficiency	First Language

EDUCATION

PROFESSIONAL DEGREE

1999-2005
Engineer, Mathematics
Universidad De Chile, Santiago, Chile.

ACADEMIC DEGREES

2007-2010
PhD. In Applied Mathematics
Université Paul Sabatier, Toulouse, France.

2006-2007
Msc. Modelling, Information And Systems Sciences
Université Paul Sabatier, Toulouse, France.

WORK EXPERIENCE

PROFESSIONAL AFFILIATIONS

2015 - Present

Center For Mathematical Modelling

Research Scientist

- Project engineer, with administrative duties and research activity
- In charge of coordinating projects in the "resources management" strategic axis
- Develops I+D+i solutions for Energy and Astronomy industries
- Led the recent software renewal process, from lab needs estimation to purchase and documentation
- Actively promoting technology transfer to industry: High-Performance Computing (CDEC-SIC), Big Data (Telefónica) and Machine Learning (U-Planner).

2011 - 2014

Center For Mathematical Modelling

Postdoctoral Researcher

- Director of the Postdoctoral Fondecyt project "Efficient Algorithms for Robust Data Analysis", with a budget of US$ 100.000.
- Taking part on CMM projects (Mining and Astronomy)
- Follow closely the Big Data revolution.

CONSULTING SERVICES

2015

Electricity Distribution Company (under NDA)

In a multi-disciplinary team from Centro de Energía and CMM

Study on the validity of current energy pricing for supply contracts.

2005

Marinetti Packaging

As Independent Consultant

Batch scheduling model for Marinetti packaging, the leading packaging company in Chile.

2004

LAN Airlines

As Independent Consultant

Resource-constrained scheduling model for optimal airplanes maintenance planning .

RESEARCH AND DEVELOPMENT SOLUTIONS ACCOMPLISHED

2013-2016

Energy Industry

Development of Decision-Aid Tools for Hydro-Thermal Systems and Micro grids Project

Development of an improved version of the stochastic dual dynamic programming algorithm for the optimal operation planning under rainfall uncertainties of hydro and thermo units in the Chilean central electric system (SIC). Features distributed computing and advanced modeling of inflows uncertainties.

2011

Mining Industry

Evaluation and Quantitative Control of Seismic Risk Project

Modelling of seismic phenomena in the underground mine "El Teniente" using elasticity equations. Development of a Python module using parallel computing for estimating the seismic moment tensor from large amounts of real data collected by a sensor network across the mine.

2011-2012

Astronomy

Shock Breakout Detections with DECam: Real-Time Detection of Stellar Explosions Project

Implementation of an algorithm for solving optimization problems entailed by the astronomic *difference photometry* technique for real-time detection of transient astronomical objects. Development of a Python module to be incorporated into the real-time pipeline.

RESEARCH ARTICLES

3 MOST REPRESENTATIVE

2015

Flores, S.

Sharp non-asymptotic performance bounds for ℓ1 and Huber robust regression estimators*, Test.*

2015

Flores, S.

SOCP relaxation bounds for the optimal subset selection problem applied to robust linear regression*, European Journal of Operational Research.*

2010
Flores, S.
On the efficient computation of robust regression estimators*, Computational Statistics & Data Analysis*.

PARTICIPATION IN INTERNATIONAL CONFERENCES

9	4	13	2
Talks Given at International Conferences	Invited Seminar Talks	International Conferences Attended	International Workshops Attended

COMPUTING SKILLS

PROGRAMMING LANGUAGES

MATLAB
▣▣▣▣▣▣
Experience with toolboxes, recursive programming, imbedded code.

PYTHON
▣▣▣▣▣▢
Experience in code parallelization and imbedded code

C/C++
▣▣▣▣▢▢

JAVA
▣▣▢▢▢▢

BIG DATA, BUSSINESS INTELLIGENCE & OPTIMIZATION SOFTWARE MASTERED

Spark	**R/Rstudio**	**Cplex**
Hadoop	**Power BI**	**GUROBI**
Hive	**Qlikview**	**AMPL, GAMS**

RESEARCH SOFTWARE DEVELOPED

ClusterGO

Matlab

Clustering Global Optimization algorithms with stopping conditions for computing the tau-estimator for robust regression.

SOCP-BB

Matlab/Cplex

Branch-and-bound algorithm for choosing an optimal subset of h elements out of n. Focuses on the LTS robust regression estimator.

LSSO

R/C/Matlab/Python

Forward-backward algorithm for solving a class of optimization problems appearing in robust regression and compressed sensing.

Elastoplastic Torsion

C++

Solves non linear PDEs using the finite element method. With applications to power penalty of uniform constraints on the gradient.

SALVADOR FLORES MARTÍNEZ
Santiago, 16 March 2016.