Francisco Javier Blanco-Silva

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Applied Mathematician and entrepreneur with a versatile skill set on both quantitative and qualitative research. Quick learner. Seeking a position for a Data Science Team as either software engineer or analyst.

Education

Purdue University — **West Lafayette, IN**
Ph.D. in Mathematics — *2007*

Computer skills

Scripting Languages: AWK, GAWK, Unix shell (including bash, csh, ksh, sh, tcsh and zsh), JavaScript, Perl, PHP, python, sed

Scientific-oriented Programming Languages: C, C++, Objective-C, Caml/OCaml, julia, scheme, Fortran, MPI, PHP, python, R, ruby, SQL

Mathematical Engines: Magma, Maple, Mathematica, MATLAB, Maxima, octave, pylab, Rstudio

Markup: asciidoc, CSS, HTML, TEX/LATEX, markdown

Relevant Professional Experience

Tizona Scientific Solutions — **Lexington, SC**
Owner — *2011–present*
Scientific consulting company: Tizona delivers solutions to commercial clients through sophisticated analysis and development of graphic-intensive, easily accessible software suites.

- Development of web-applications (coded in `HTML+CSS`, `PHP`, `JavaScript`, `SQLite` with additional scripts in either `python` or `ruby` when needed). (see e.g. `git://github.com/blancosilva/lizard.git`)

IMI and Department of Mathematics, University of South Carolina — **Columbia, SC**
Research Assistant Professor & Instructor — *2007–present*

- Wrote a technical book on Scientific Computing via the `python` libraries `numpy`, `scipy`, and `matplotlib`: *Learning SciPy for Numerical and Scientific Computing*. Packt Publishing (February 2013)
- Research on systematic approaches to extracting high resolution information from HAADF-STEM images which will be beneficial to the characterization of beam sensitive materials. Developed parallel code to perform super-resolution of time-frames of micrographs in both `Matlab`, and `C/C++` with the `CImg` libraries. The codes were run in a 16-processor `UNIX` machine property of the IMI, and a 272 core parallel computational cluster property of the University of South Carolina. Co-authored chapter 5 of the book *Modeling Nanoscale Imaging in Electron Microscopy (Nanostructure Science and Technology)*. Springer (March 2012)
- Research on the development of multi-resolution formulated algorithms to enable high compression rates using non-linear approximation methods, enhanced procedures for Hausdorff metric estimation, and the efficient structures for organization of digital urban terrain data.

Department of Mathematics, Purdue University — **West Lafayette, IN**
Graduate Student & Teaching Assistant — *1999–2007*

- Collaborated with Forestry Engineer C. Rizcalla and Mathematician S. Gruver to produce a scientific paper on epidemiology, studying the impact of ebola on different populations: *Modeling the Impact of Ebola and Bushmean Hunting on Western Lowland Gorillas*. EcoHealth (June 2007). Also wrote the codes that performed the numerical simulations for this model in `C/C++`, and run them in a 4-processor `UNIX` machine. (`git://github.com/blancosilva/ebola.git`)
- Developed a series of scripts in `OCaml` to compute and manipulate wavelet coefficients of 1 and 2-D signals. With them, one is able to perform high-level image processing like denoising and edge detection. (`git://github.com/blancosilva/imageProcOCaml.git`)
- Developed a series of scripts in `python` to solve a problem in kinetics of networks of enzymatic reactions. The scripts allow input of a single enzyme, and retrieval of all possible networks in which the enzyme is present (from the online databases at `www.enzyme-database.org`) One is also able to input the initial concentration of substrates present in the chemical reactions, and the codes will compute the concentration of all components at any given time. The computations were usually performed by two multiprocessing systems: a 4-processor `UNIX` machine property of the Department of Mathematics of Purdue University, and for a brief period of time, an `IBM` supercomputer property of the University of Kentucky. (`git://github.com/blancosilva/enzyme.git`)

Universidad Complutense de Madrid — **Madrid, Spain**
Undergraduate Student — *1998*
Developed a simple system for Mechanical Geometry Theorem Proving in `Maple`. The system allows a computer to prove the validity of conjectures in plane Euclidean Geometry, thus potentially offering proofs to Theorems. Wrote a research article (in Spanish) on the subject: *Sobre demostración automática de un problema geométrico*. Bol. Asoc. Prof. Puig Adams (October 1999) 78–81.