

Walter Moreira

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Summary Skilled software engineer and mathematician with a wide spectrum of experience in technical and scientific areas. Strong analytical skills, high flexibility to move across disciplines, and experience interfacing between scientists and engineers. Up to date in new technologies and enthusiast promoter of best practices.

Experience

- 2013–present
- ◇ **Consultant Mathematician** at *Briggo, Inc.* Worked on algorithms for an automated coffee kiosk, to increase throughput and time estimation reliability.
 - ◇ **Research Software Engineer** at *NeuroTexas Institute, St. David's Medical Center.*
 - Worked on natural language processing of medical records to populate a research database of neurological procedures.
 - Managed the Linux network for researchers, and improved the architecture for high performance computing.
- 2010–2013
- ◇ **Senior Software Engineer** at *The University of Texas at Austin, McDonald Observatory.* Worked in the upgrade of the Hobby-Eberly Telescope (HET) for the HET Dark Energy Experiment (HETDEX).
 - Designed and implemented a high availability logging system with a non-relational database backend. Designed its API, command line clients, and web-based clients.
 - Designed and implemented the graphical user interface (GUI) for the telescope control system.
 - Participated in the design and implementation of the telescope control system, working in C++ and Python. Designed a robust scripting engine allowing easy and agile programming of the telescope.
 - Researched and improved the accuracy of the pointing geometry of the telescope, and developed new algorithms to generate trajectories for arbitrary sky objects.
 - Taught courses in Python for the team. Wrote the documentation for the system targeted to scientists and developers.
 - Installed, maintained, and promoted, tools for version control, issue tracking, and backup infrastructure for the full stack. Set the standards for best practices.
- 2009–2010
- ◇ **Software Developer** at *AgileAssets, Inc.* Worked in developing a web-based application to manage infrastructure assets in civil engineering, and to optimize the decision process for roads, bridges, and fleets. Developed Java code to handle a SQL database backend, and Javascript/HTML code to handle the user's interface.
- 2008–2009
- ◇ **Assistant Researcher** at the *Sketch Recognition Lab, Department of Computer Science at Texas A&M University.*
 - Designed and implemented a database and web application to collect and manage user studies in the field of sketch recognition.
 - Assisted researchers with mathematical tasks.
- 2004–2008
- ◇ **Teaching Assistant** at the *Department of Mathematics at Texas A&M University.*
- 1998–2004
- ◇ **Assistant professor** at the *Department of Mathematics at Universidad de la República, Uruguay.*
 - Responsible for courses in mathematics and computer science at the undergraduate level, including the management of teaching assistants.

- Designed and implemented a new curriculum for the course *Introduction to Computer Science*.
 - ◇ **Network administrator** for the Department of Mathematics.
- 1997–1998 ◇ **Consultant** for the *State Energy Company of Uruguay (UTE)*. Developed statistical software to estimate efficiency in high power energy transport networks.
- Education ◇ **Ph.D. in Mathematics**. Texas A&M University (2008).
Dissertation: *Products of Representations of the Symmetric Group and Non-commutative Versions*.
- ◇ **M.S. in Mathematics**. Universidad de la República, Uruguay (2000).
Dissertation: *Russian Options for a Diffusion with Jumps*.
- ◇ **B.S. in Mathematics**. Universidad de la República, Uruguay (1998).
Graduated top of the class.
- Relevant Skills ◇ Very strong analytical skills. Aptitude for independent researching. Fast learning curve of new disciplines.
- ◇ Excellent technical and scientific writing skills. Experienced in oral presentations and communication of results. Experienced in collaborative work.
- ◇ Expert in the *Python* programming language.
- ◇ Proficient in several other languages, including: *C/C++*, *Javascript*, *R*. Fluent in web technologies, from frontend HTML/CSS and asynchronous messaging (AJAX), to backend SQL, non-relational databases, and web frameworks.
- Software Development ◇ Creator of **RPy** (<http://rpy.sourceforge.net>), a Python interface to the R statistical programming language.
- ◇ **PerTec**, a proprietary application for the State Energy Company from Uruguay, for statistical estimation of the efficiency in energy transport networks.
- ◇ **Wind**, an application for counting roots of polynomial systems with high stability.
- Selected Publications ◇ ***The Influence of Motion and Stress on Optical Fibers*** [Astronomy]
Proceedings of SPIE 8446, September 2012.
- ◇ ***New Control System Software for the Hobby-Eberly Telescope*** [Astronomy, Software]
Astronomical Data Analysis Software and Systems (conference), November 2011.
- ◇ ***SOUSA v2.0: Automatically Generating Secure and Searchable Data Collection Studies*** [Computer Science, Sketch Recognition]
International Workshop on Visual Languages and Computing, 2009.
- ◇ ***Combinatorics of the Free Baxter Algebra*** [Mathematics]
Electronic Journal of Combinatorics 13(1), 2006.
- ◇ ***The Smash Product of Symmetric Functions*** [Mathematics]
Proceedings of the 17th International Conference on Formal Power Series and Algebraic Combinatorics, 2005.
- ◇ ***Russian Options for a Diffusion with Negative Jumps*** [Finance, Mathematics]
Publicaciones Matemáticas del Uruguay (9), 2002.
- ◇ ***Some Comments about the Axiomatic Set Theory*** [Philosophy, Epistemology]
Galileo, second epoch, number 18, 1998.