Péricles Lopes Machado

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Birth date:	02/02/1989

I am computer scientist with Advanced Resources and Risk Technology, LLC with expertise in computer distributed systems (C++ and Python), geostatistics and physics simulation.

I have a Computer engineering's bachelor degree and a Electric engineering's master degree from UFPA (Universidade Federal do Pará - Federal University of Pará). I am currently concluding my PhD degree in Computational Geostatistics at the Universidade Federal do Rio Grande do Sul. I participated in three International Collegiate Programming Contest national finals (south america/Brazil).

Since 2008, I'm working with project and development of GUIs using Qt, distributed programming in C++, algorithm design and compiler development. And, since 2013, I work with Python.

Education

PhD in Computational Geostatistics at the Universidade Federal do Rio Grande do Sul, 2016 - 2019 (expected)

My PhD research project is focused on machine learning applied to computational geostatistics. The main goal is adapt the machine learning tools to create a new generation of geostatistic algorithms and workflows. Thesis defense is scheduled to September/2019.

Electric Engineering's Master degree in Computational Eletromagnetism at Universidade Federal do Pará, 2011 - 2012

I created a **meshless** simulator for computational eletromagnetism based on RPIM (Radial Point Interpolation Method).

Computer Engineering bachelor at the Universidade Federal do Pará, 2006 - 2011

During my undergraduation, I acquired skils at distributed systems, algorithm development and C++. Also, I participated in three International Collegiate Programming Contest national finals (south america/Brazil).

Experiences

Computer scientist at Advanced Resources and Risk Technology, LLC (AR2Tech) , 2017 - today

AR2GAS and Distributed algorithms for Geostatistics simulation

- Development of a novel geostatical software with support for distributed and cloud computing.
- Support and development of customized algorithms for clients.

Researcher and PhD student, LPM-UFRGS (Laboratório de Planejamento e pesquisa Mineiro)/UFRGS, 2013 - 2017

I worked with development of geostatistical algorithms, AR2GEMS plugins developments and I did contributions to AR2GEMS project, like python plugins support, multi-thread support.

Researcher and MsC student, LANE (Laboratório de Análise Numérica em Eletromagnetismo)/UFPA, 2008 - 2012

LANE SAGS - Simulator for grounding analysis

I worked with improvement and support. I developed a new QT4 GUI and I trained new users.

During this project, I learned many concepts about distributed systems (MPI), openMP, pthreads, QT multi-thread environment, networking programming, C++.

LANE MAXWELL - meshless simulator for electro-magnetics wave propagation

During my master degree, I worked with electro-magnetics wave propagation, using a **meshless** maxwell equation discretization (RPIM - Radial Point Interpolation Method)

This system was developed in C++ and have a QT4 GUI. Currently, this software is a open source project called GoGoRPIM (lanemaxwell).

Software projects

Open source

Clever Language - Implementation of multi-thread support and others features (FFI, ncurses, etc.)

I designed and developed the Clever parallellism model. Furthermore, I work in improvement of many features in the language.

The Clever is developed by a member of PHP "core" team, Felipe Pena.

Events and contests

Contests

South America/Brazil finalist at ACM ICPC 2008, 2009 and 2010

With the GoGo40 team, I attended three consecutives ACM ICPC south america finals.

Golden medal at SBM/MEC OBMEP 2005 (Brazilian Public School Math Olympiads 2005 promoted by Brazilian Math Society and Education Ministery)

During my high school, I gained a golden medal at OBMEP 2005.

Languages

- Portuguese (**Native language**)
- English

Skills

Software Development

- Advanced level in Python development
- Expert level in C/C++ development
- Expert level in parallellism and concurrency (threads, mutexes, semaphores, condition variable, etc.)
- Expert level in distributed systems
- Programming knowledges in: Python (Medium level), C (Advanced), C++ (Advanced), Javascript (basic level).
- Tools: Git, QMake, CMake, MySQL, Bison, Flex, MPI, Pthread, GRPC etc.
- Platforms: Linux (Debian, Ubuntu), Windows (XP, 7).
- Libraries: GRPC, Qt, Eigen, VTK, pybind11, GMP etc.
- Medium level in physics simulators development

Major Influences

Andrew S. Tanenbaum, Djisktra, Donald Knuth, Richard Bellman, Bjarne Stroustrup

Technical Publications

- Covariance table - A fast automatic spatial continuity mapping, Elsevier
- Analysis of voltages induced on power outlets due to atmospheric discharges on Radio Base Stations, Elsevier
- An automatic methodology for obtaining optimum shape factors for the radial point interpolation method, Journal of Microwaves and Optoelectronics
- A conflict-free, path-level parallelization approach for sequential simulation algorithms, Elsevier, Computers & Geosciences / Elsevier

Projects and links

- github : My personal profile at GitHub
- This resume: resume
- Resume Linked-in: Complete CV