

# Ana V. Solorzano

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in [anavs](#)

📍 Brazil (open to relocation)  
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🏠 [gitlab.com/anaveroneze](https://gitlab.com/anaveroneze)

I have been working with HPC since my Bachelor's, including performance analysis, parallel programming, load balancing, and data visualization. I have regular experience configuring scientific applications in clusters with various hardware architectures such as x86\_64 CPUs, ARM, and GPUs. I am passionate about how HPC can change the world positively. I also advocate for more diversity in technology.

## EDUCATION

Mar. 2020-  
present

### Master in Computer Science - Parallel and Distributed Processing Group

- Federal University of Rio Grande do Sul (UFRGS)
- Researching on parallel and distributed deep learning frameworks for multiple GPUs
- Performance analysis of Ondes3D, a scientific application in C++ for simulating seismic waves propagation parallelized with MPI. Performed experiments in different multicore AMD, Intel and ARM processors. Used code instrumentation with Score-P and hardware counters access with PAPI.
- Studies on workload characterization and load imbalance metrics

Mar. 2015-  
Dec. 2019

### Bachelor in Computer Science

- Federal University of Santa Maria (UFSM)
- Developed BlocklyPar, a game for introducing parallel programming concepts with block-based language to students from higher education courses in Computer Science (<https://blocklypar.github.io>). Used the Blockly Google library, programming in JavaScript, CSS, and HTML

## EXPERIENCES

Aug. 2017-  
Aug. 2019

### Student Researcher for the National Institute for Space Research (INPE)

- Project PIBIC/INPE/CNPq: "Web Platform for Experiments with Parallel Friends-of-Friends (FoF) for Astronomical Objects Classification"
- Parallelized a Friends-of-Friends (FoF) clustering algorithm for astronomical objects classification with OpenACC for two CPUs and two GPUs NVIDIA Tesla K80. It achieved a speedup of up to 48, compared to the serial version CPU only. Made performance analysis of parallel FoF with MPI, OpenMP and OpenACC using the Intel Vtune and nvprof profilers
- Developed a web portal for remote execution of high-performance applications in Astronomy using Django, HTML, CSS, SQLite as database service, Redis and Celery to manage tasks. Deployed the platform to the Heroku PaaS for development tests in: <https://observatoriovirtual.herokuapp.com>

Apr. 2015-  
Dec. 2018

### Volunteer at a programming club for teaching computing to K-12 students

- Offered free activities in the University and 8 schools, in charge of 4 meetings with 4 schools. Organized talks, selected and customized auxiliary tools, and contributed with media communication
- Presented computational thinking using block-based tools (Code.org, MIT App Inventor, Blockly-Games), and text-based programming in Studio Sketchpad (JavaScript) and Khan Academy (C)
- Built a multi-user web platform to create personalized tests to practice for the Brazilian Olympiad of Informatics. Built with Django (Python, HTML, JavaScript, and CSS), PostgreSQL, and Google Analytics to collect access data. Deployment to Heroku: <https://pratiqueobi.herokuapp.com>

## TECHNICAL SKILLS

- C (most-used), R, JavaScript, C++, and Python
- Linux Environment and Unix Shell Scripting
- Job schedulers on Linux HPC clusters: Slurm and OAR
- Parallel programming with OpenMP, MPI and OpenACC
- Load imbalance metrics, measurement and analysis of parallel applications
- Tracing and profiling for C/C++ and Python: perf, Score-P, Nvprof and Intel Vtune
- Web development: R Shiny, Django framework using Python, JavaScript, HTML and CSS
- Others: emacs-orgmode, ggplot2, LaTeX, GiT, PAPI, Spack, GDB, PDB, Horovod, and TensorFlow

## GENERAL SKILLS

Creativity

Critical thinking

Proactive

Communication

Writing

Leadership

Portuguese (native)

English (advanced)

Spanish (intermediary)

## LEADERSHIP AND AWARDS

- 2021 **Workshop Chair for the PERMAVOST'21 in conjunction with ACM HPDC 2021**
- 2021 **Palantir Global Impact Scholarship recipient** - 10 recipients from almost 1000 applications
- 2021 **SCALE Student Volunteer in the Supercomputing Conference (SC21)**
- 2020 **Lead Student Volunteer in the Supercomputing Conference (SC20)**
- 2020 **1st Place - HPC Systems Category in the STEM-Trek Science Slam - video contest**
- 2019 **1st Place - ACM Student Research Competition at GHC19**
- 2019 **Grace Hopper Celebration Scholarship Recipient**
- 2019 **Student Volunteer in the Supercomputing Conference (SC19)** in Denver, CO
- 2018 **Student Volunteer in the Supercomputing Conference (SC18)** in Dallas, TX

## PUBLICATIONS

- 2021 Accepted paper for the 2020 International Conference on High Performance Computing Simulation (HPCS'20): Solórzano, A. L. V.; Schnorr, L. M.; Navaux, P. O. A. "Temporal Load Imbalance on Ondes3D Seismic Simulator for Different Multicore Architectures".
- 2020 Solórzano, A. L. V.; Nesi, L. L.; Schnorr, L. M. "Using Visualization of Performance Data to Investigate Load Imbalance of a Geophysics Parallel Application". In: *Practice and Experience in Advanced Research Computing*. ACM, NY, USA, 518–521. DOI: <https://doi.org/10.1145/3311790.3400844>
- 2019 Solórzano, A. L. V.; Schneider C. A.; Charão, A. S. "Pratique OBI: Um recurso de apoio a treinos para a modalidade Iniciação da Olimpíada Brasileira de Informática". In: *27º Workshop sobre Educação em Computação (WEI)*, Belém, PA. DOI: <https://doi.org/10.5753/wei.2019.6650>
- 2019 Solórzano, A. L. V.; Monego V.; Charão, A. S.; Velho, H. F. C.; Kozakevicius, A.; Ruiz, R. S. R.; "Facilities for Remote Execution of High Performance Applications in Astronomy". In: *Conf. of Comp. Interdisciplinary Science*. Atlanta, USA. Available in: <https://proceedings.science/ccis-2019/papers/facilities-for-remote-execution-of-high-performance-applications-in-astronomy>
- 2018 Charão, A. S.; Solórzano, A. L. V.; Trindade, R. G. "Criando aplicativos sobre o descarte adequado de lixo: experiências utilizando uma abordagem temática em um clube de programação". In: *26º Workshop sobre Educação em Computação*, Natal, RN. Available in: <https://sol.sbc.org.br/index.php/wei/>
- 2017 Charão, A. S.; Solórzano, A. L. V.; Matiuzzi, P. "Programação Criativa e Colaborativa no Ensino Médio: uma Experiência com Studio Sketchpad". In: *23º Workshop de Informática na Escola, 2017*, Recife, PE. p. 412. DOI: <http://dx.doi.org/10.5753/cbie.wie.2017.412>
- 2016 Solórzano, A. L. V.; Charão, A. S.; Barcelos, P. P. A. "Experiências de criação de aplicativos móveis com alunos do ensino fundamental e médio". In: *Anais do 24º Workshop sobre Educação em Computação*, Porto Alegre, RS. p. 2136-2145. DOI: <https://doi.org/10.5753/wei.2016.9657>

## DIVERSITY AND INCLUSION

- Dec. 2020 **Co-founder of the Women in HPC Affiliate in the South of Brazil**  
A community of women to connect and encourage women in the field, to organize activities for undergraduate students in CS, and events for our community.
- Nov. 2019 **Co-founder of Brazilians in Tech (<http://braziliansintech.com>)**  
A NPO for Brazilian women studying and working in Technology. We offer the first platform that gives visibility to Brazilians in Technology and offers relevant information to help them in their journeys.
- Aug. 2019 - **Volunteer at UniEscola - Santa Maria, Brazil**  
Dec. 2019 A project to present STEM careers to female students at 5 schools located in socially disadvantaged suburbs. We guided hands-on Code.org activities to 54 students.
- Jun. 2019 **Founder of BitMarias**  
Group of women in computing at the Federal University of Santa Maria.