

🏠 <https://matheustavares.gitlab.io>
✉ matheus.tavb@gmail.com

🌐 [matheus-tavares-bernardino](#)
📄 [matheustavares](#)

📍 São Paulo, Brazil
UTC-3

Experience

Jul. 2022 - **Qualcomm**

Present *Senior Software Engineer*

Improving the Hexagon DSP architecture support at Qualcomm's QEMU fork.

Jun. 2020 - **Amazon Web Services (AWS)**

Aug. 2021 *Freelance Open Source Developer*

Worked with the upstream Git community to improve the performance of *checkout* operations in Git using parallelism, achieving speedups of up to 4.5x on NFS and 3.6x on local SSDs.

May. 2019 - **Google Summer of Code 2019 in Git**

Sep. 2019 Improved multithreading in *git grep* for searches in historical revisions, resulting in up to 3.3x speedups.

Open Source Contributing

Feb. 2019 - **Git version control system**

- Nov. 2021
- Performance and output improvements to *grep*, *checkout*, *add*, and others;
 - Enhancements to the interaction of *add*, *rm*, and *grep* commands with the *sparse checkout* feature;
 - RCE vulnerability fix in *git clone* (CVE-2021-21300), and other bug fixes in *add*, *apply*, *checkout*, etc.

Jul. 2018 - **Linux kernel**

Nov. 2018 Improved the AD2S90 resolver driver (Industrial I/O Subsystem), making it ready for the kernel mainline tree.

Sep. 2018 - **Kworkflow**

May. 2020 *Contributor and Co-Maintainer*

A tool box for Linux kernel development, written in Bash. Contributed in different parts of the project.

Education

Feb. 2020 - **Master's in Computer Science**

Jul. 2022 University of São Paulo

Dissertation: *Parallelizing Git Checkout: a Case Study of I/O Parallelism on Desktop Applications*

Feb. 2015 - **Bachelor of Computer Science**

Feb. 2020 University of São Paulo

Dissertation: *Improving Parallelism in git-grep*

Publications

1. **Improving Parallelism in Git and GNU Compiler Collection: Strategies, Difficulties, and Lessons Learned** - IEEE Software, vol. 38, no. 5, Sep-Oct 2021

2. **Parallelizing Git Checkout: a Case Study of I/O Parallelism** - SBAC-PAD 2022

Awards

3rd place at WSCAD-CTD 2022 (master's thesis)

Competition of Thesis and Dissertation in Computer Architecture and High Performance Computing

Extracurricular

FLUSP - FLOSS at USP

Co-founder, member, and mentor

- FLUSP is a group of students at USP that contribute and disseminates FLOSS software.
- Mentored students and non-students that were interested in contributing to Linux and Git.
- Co-organized events such as the KernelDevDay and linuxdeb-br 2019's Workshop Day.

Undergraduate research in High Performance Computing

Apr. 2018 - Mar. 2019

Worked to accelerate an astrophysical ray-caster code by porting it to GPU with CUDA and OpenACC.

Skills

Programming Languages C, Python, Shell script, Lua (intermediary), Ruby (basic)
Software Engineering Parallel Programming, Testing, Git, CI, Open Source Development
Others Linux/Unix, Automation, Filesystems (NFS, mmap, etc.), Hexagon Assembly (basic)

Speaking

Mar. 2022	Git TechTalk at Elo7 Invited to talk about how key Git operations translate to its internal storage.	Jul. 2019	DebConf 2019 Conference Co-hosted a session about the benefits of having a local FLOSS community.
Aug. 2019	Linuxdev-br 2019 Conference Discussed about object-oriented techniques in C, showing use cases in Git.	Sep. 2018	25° SIICUSP - International Phase Presented my undergraduate research in High Performance Computing.