

# GUILHERME I. GONÇALVES

Senior Software and Data Engineer | M.Sc. Computer Modeling

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## EXPERIENCE

### Senior Full-stack Engineer

#### PrimeIT

Feb 2022 – Present

Remote – Lisbon, Portugal

- Worked as a software development consultant for Siteimprove, a global Software-as-a-Service (SaaS) company specializing in cloud-based tools and services for website governance and optimization.
- Led the development of Back-ends utilizing **C# + .NET** and **NodeJS**, and Front-ends using **React JS**, within a cloud-driven and **micro-services** architecture.
- Pioneered the creation of a **React JS** Design System with a core focus on **accessibility**, meticulously adhering to the **Web Accessibility Initiative** – Accessible Rich Internet Applications (WAI-ARIA) standards.
- Drove the development of innovative solutions by leveraging the **AWS** ecosystem—including **DynamoDB**, **CloudFront**, and **ElastiCache** to deliver scalable, high-performance applications. Additionally, worked with **AI-based** APIs, enabling deeper data-driven insights and enhancing digital experiences for customers.
- Contributed to agile development processes by defining and refining tasks in international meetings, and orchestrating Sprints following the **SCRUM** framework.

### Technical Lead & Senior Full-stack Engineer

#### O2 Filmes

Sept 2018 – Jan 2022

Remote – São Paulo, Brazil

- Developed a robust and online text editor and project manager system dedicated to screenwriters.
- Developed its Back-end using **Rails + MongoDB + Node.js** and its Front-end using **React JS + Etherpad**, operating in a **cloud-driven** and **micro-services** architecture written with **Terraform** using **Docker** containers running on **Amazon ECS** clusters.
- Responsibilities included all development tasks (create code, test, automate deployments, etc.), training new developers, discussing the next A/B tests to be run, and listing/detailing/prioritizing the stories to be played.
- Implemented features such as multi-user tracking, data visualization with **D3**, notifications, importing, parsing and exporting files, advanced graphical interface features, etc.

### Software and Data Engineer & Scientific Researcher

#### CERN – European Organization for Nuclear Research

Mar 2019 – Mar 2020

Geneva, Switzerland

- Designed and developed an energy estimation **algorithm** for the ATLAS Tile Calorimeter at the **Large Hadron Collider** – the world's largest and most powerful particle accelerator.
- Designed and implemented a **machine learning**-based tool using **C++** and **Python**, integrated into CERN's complex world-wide **distributed system** using millions of events from real and simulated proton-proton collision data to train the models.
- Developed a high-performance pulse generator library in **C++** with **Python** interfaces, enabling the simulation of electronic readouts for physics analysis and AI model training, widely adopted by research groups globally.

## EDUCATION

### Ph.D., Computational Modelling

#### Rio de Janeiro State University

Mar 2021 – Expected May 2025

### Master's degree, Computational Modelling

#### Rio de Janeiro State University

Jan 2018 – Apr 2020

### Bachelor's degree, Computer Engineering

#### Rio de Janeiro State University

Jan 2012 – Aug 2017

## SKILLS

### Programming Languages

C++   Python   JavaScript   TypeScript   C#   Ruby   Java   Lua   PHP   Shell

### Back End

NodeJS   Ruby on Rails   MongoDB   DynamoDB   MySQL   Redis   Nginx   OAuth & OpenID

### Front End

ReactJS   Angular   D3   HTML   SASS

### DevOps

Docker   Terraform   AWS   ECS   Kubernetes

### Miscellaneous Skills

Machine Learning   Mobile Development   Signal Processing   SCRUM   Test-Driven-Development   Cloud Computing   Git

## LANGUAGES

Portuguese  
English  
French  
Spanish



## EXPERIENCE

### Full-stack Developer & Software Engineer

#### DataHex Computer Technology

📅 May 2016 – Jun 2018

📍 Nova Friburgo, Brazil

- Designed and developed an Event Ticket application for **Android** written in **Java** with data synchronization and Bluetooth printer.
- Designed and developed a **cloud-based** Point of Sale system with business management features, using **NodeJS** in the Back-end and **AngularJS** in the Front-end, following the **micro-services** architecture.
- Developed a desktop application in **TypeScript** using **Electron** with data synchronization across the internet and among multiple local network nodes using **P2P**.
- Developed an industry-standard authentication system implementing the **OAuth 2.0** and **OpenID Connect** protocols.

### Full-stack Developer & Mobile Developer

#### Vista Group Network

📅 Jun 2014 – Apr 2016

📍 Nova Friburgo, Brazil

- Developed a **cloud-managed** parking software using **Android** devices for ticketing and infringement monitoring. The monitoring mobile application was written in **Java** while the Back-end was written in **.Net**.
- Developed an **iOS** and **Android** application for parking tickets purchase using **Ionic** with **JavaScript**.
- Created software to detect free parking spaces using **image processing** from surveillance cameras. The tool was developed using **Python** and **Open-CV**.

## OPEN SOURCE CONTRIBUTIONS

### Etherpad

#### A real-time collaborative editor for the web

🔗 <https://github.com/ether/etherpad-lite/commits?author=ingoncalves>

### Athena

#### The ATLAS Experiment's main offline software

🔗 [https://gitlab.cern.ch/atlas/athena/-/merge\\_requests?state=all&author\\_username=ginaciog](https://gitlab.cern.ch/atlas/athena/-/merge_requests?state=all&author_username=ginaciog)

### Scilab

#### Free and Open Source software for numerical computation

🔗 <https://github.com/scilab/scilab/commits?author=ingoncalves>

## PUBLICATIONS

### 📄 Journal Articles

- Gonçalves, Guilherme Inácio, Bernardo Sotto-Maior Peralva, et al. (2022). "Performance of Optimal Linear Filtering Methods for Signal Estimation in High-Energy Calorimetry". In: *Journal of Control, Automation and Electrical Systems* 33.5, pp. 1601–1611.
- Gonçalves, Guilherme Inácio, Juan Lieber Marin, et al. (2020). "Performance Evaluation of Energy Reconstruction Methods in High Energy Physics Experiments". In: *Revista Mundi Engenharia, Tecnologia e Gestão (ISSN: 2525-4782)* 5.2.

## REFEREES

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## ACHIEVEMENTS



### Cum Laude Honors – Rio de Janeiro State University

Academic honors awarded due to the high average grade.



### DELFB2 – République Française

Diploma granted by the French Ministry of National Education that certifies French skills at B2 level.