

Rafael Campos Nunes

Computer Scientist

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Education

1. University of Brasilia, BSc. Computer Science. 2019–2022
2. Technological Federal University of Paraná, BSc. Computer Science. 2016–2019
3. Federal Institute of Technology, Informatics. 2012–2015

Experience

SIC00B Pagamentos (2023–Present)

I'm working on adapting software to new standards in the Payment Industry and also constantly improving the performance of existing software achieving payment transaction processing of 70ms.

Siden (2022–2023)

I worked on a wide spectrum of technologies to develop a new generation of CDNs for streaming services. I used Go extensively with non-relational databases (MongoDB) and all sorts of messaging systems such as Kafka and NATS to develop highly reliable distributed systems. We have a micro-service oriented architecture using AWS, and I also developed some embedded software for the ARM platform that would run part of our services. I successfully implemented a distributed system for device authentication with multiple third-party actors and a system for certificate issuing with our PKI and helped to maintain other services that made part of our cloud infrastructure. Also, I developed a dynamic debug service that would trigger a debug session across every service we had if requested so.

[go, nats, kafka, aws, helm, terraform, linux, arm, pki, datadog, grafana, postgres, mongodb redis, docker, kubernetes]

SIC00B Pagamentos (2020–2022)

I've worked on the development and maintenance of micro-services and monoliths that were responsible for a large part of the payment transaction processing in Brazil. I used Java (jPOS), Spring Boot and Go with relational databases.

[go, java, oracle, kafka, internal cloud solution, linux, kibana, docker]

Mauro Silva Lawyers and Associates (2019–2020)

I worked developing tools that automated juridic tasks of a law firm. I implemented a knowledge storage that would ease the work of lawyers when trying to find specific federal regulations. Scrapers, relational databases and NLP (Natural Language Processing) models were the fundamental technologies I had to use. The knowledge storage was developed and briefly used, along with some automation programs that made the life of the office easier by, for instance, providing document generation based on templates that would generate thousands of documents on a millisecond scale.

[go, python, html, css, js, postgres, docker, linux]

Technological University of Paraná (2018–2018)

Developed a platform designed to facilitate data submission by the general public, which was then reviewed by professors and companies interested in implementing or funding the ideas. The primary goal was to connect companies, the public, and the university.

[go, html, css, js, postgres, linux]

Supermercados do Norte do Brasil Ltda. (2014–2016)

I've worked developing automation tools that would work on the POS (Point of Sale), staff computers, and hand-held devices that were used to count, mark, and issue receipts for goods received. I succeeded in the development of applications that helped to reduce the number of hours an employee took to ingest (or to count at the PDV) thousands of items.

[erlang, java, oracle, soap, linux, windows, windows ce]

Projects

- **u-root (github.com/u-root/u-root)**
A userland written in Go that can create a file system on root mode (initramfs) containing a set of tools busybox alike
- **kokiri (github.com/newaypix/kokiri)**
Graphics library to create games using C++ and SDL2.
- **brain (github.com/brain-labs/brain)**
Esoteric programming language (brainfuck dialect) written in C++ that compiles binaries using our LLVM backend.
- **zrm (github.com/rafaelcn/zrm)**
A secure deletion tool, or is it a writing removal tool (?). Written in Go to be quite similar to the shred command but simpler.
- **zepto (github.com/rafaelcn/zepto)**
A complete processor of 16 bits, implemented in Deeds with a Python assembler.
- **auto-move (github.com/rafaelcn/auto-move)**
A file watcher tool to move files based on a set of rules (defined by you). Very neat for organizing your download folder files or folders shared on the network.

Research

- Construction of an autonomous robot for detection of structural failures, 2017.
[c, circuit design, arduino]
- Study and development of a multi-platform graphical framework with SDL2 and OpenGL, 2017.
<http://sh.utfpr.edu.br/setac/anais2017.pdf>
[OpenGL, SDL2, c++]
- An alternative to imperative programming: OCaml, 2018.
<http://sh.utfpr.edu.br/setac/anais2018.pdf>
[ocaml, c++]
- Mathematical Model for the Ebola Outbreak in Guinea, 2019.
<https://proceedings.sbmac.org.br/sbmac/article/view/2973>
[ode, pde, numeric solutions]
- Embracing modern C++ features: An empirical Assessment on the KDE community, 2023
<https://doi.org/10.1002/smr.2605>
[c++]