contact

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GitHub
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Blog

languages skill

English: advanced (reading, writing); intermediate (speaking)

programming languages

C, C++, Go, Python, Lua, Vala, Javascript, Shell, Java

protocols

DBus, RTMP, HTTP, SMTP, SIP, RTP, AMQP

cloud

Kubernetes, AWS, Docker, CoreOS

databases

MongoDB, PostgreSQL

documentation

Gtk-Doc, Doxygen, Docbook, LDoc, LaTeX, Docco

automation

Ansible, Make, Grunt

dev environment

Vagrant, Docker Compose

monitoring

Prometheus, Grafana, StatsD, Sysdig

education

2006–2011 **Bachelor of Computer Science** UFSC

experience

2015–now **Neoway** Florianópolis, Santa Catarina
Software Developer

Technical lead of the team responsible for capturing data from the web and publishing it to the entire company, which involved solving hard problems as:

- Scraping the web (Scrapy and Selenium)
- Parsing data from multiple formats (HTML, PDF, SWF)
- Manage a massive amount of raw data at S3
- Defining and documenting good protocols for proper service integration
- Developing services on different languages, like Go and Python
- Define good heuristics to detect data production problems on the fly
- Migrating the whole production pipeline to a new service oriented architecture
- Coach the team on good test techniques for the new architecture
- Keep a service providing good proxies for the scrapers
- Helped maintaining the captcha breaking service

Besides the technical challenges I also helped the team to apply agile development practices, like TDD (Test Driven Development), , code review, CRC (Class Collaborator Cards) and continuous integration. Together we built a DevOps culture to enable infrastructure as code on our team, we where responsible for the whole solution, from the development to testing and deployment (including monitoring the production system).

Main accomplishments:

- Technical leadership and coaching for a team of 6 people
- Built a new crawling framework, from scratch to production
- Fully automated development environment with docker compose
- Used docker as a development and deployment tool
- Cluster orchestration at AWS using Kubernetes, CoreOS and Docker
- Migrating all infrastructure from Codero to AWS
- Migrated a database oriented architecture to new microservices ecosystem
- Migrated the old framework, with more than 200 bots, to the new one
- Actively participated on the screening and interviews of new candidates for the team
- Coached new members
- Implemented a real time monitoring for the data production pipeline using StatsD and Sysdig
- Gave talks inside the company and on events like TDC (The Developers Conference)

2012–2015 **Dígitro** Florianópolis, Santa Catarina
Systems Analyst

Technical lead of the team, helping on design, implementation and testing of new and legacy software.

Development of a REST service responsible for audio streaming and audio metadata extraction.

Helping the team to apply agile development practices, like TDD, self organization and continuous integration.

Evangelizing the adoption of the DevOps culture to enable infrastructure as code on the entire organization.

Helped on the adoption of new technologies like NodeJS, defining good practices and the tool set.

Coaching new members on the team.

Main accomplishments:

- Defining the architecture and contract of a REST service from scratch.
- Implementing a REST service with TDD.
- Acquired knowledge with NodeJS, Express, Mocha, Istanbul, JSHint, Grunt.
- Integration of a NodeJS server with multiple child processes.
- Developing GStreamer plugins with TDD.
- Constructed development environments with Vagrant.
- Orchestration with Ansible.
- Performed presentations to disseminate the idea of distributed/automated development environments.
- Coaching the use of TDD on the team.
- Helping the team to introduce automated tests on legacy code.
- Coached two new members on the team.
- Usage of CRC cards to design systems.
- Contributing on the migration process from svn to git.
- Experience integrating heterogeneous systems.

2010–2012 **Dígitro** Florianópolis, Santa Catarina
Programmer

Development of a VoIP phone microservices, participating actively on the design and architecture of the solutions.

Some of the services include:

- Audio streaming with RTMP.
- Voice biometrics.
- Word searching on audio.
- REST interface for a PBX.

Main accomplishments:

- Acquired knowledge on interprocess communication using DBus.
- Object orientation in C.
- TDD on embedded C.
- Development of VoIP applications.
- Embedding Lua code on C.
- Defining the API and architecture of web services and middlewares.
- Embedded developing on blackfin platform, using uCLinux and UBoot.
- Continuous integration using Jenkins.
- Experience with document oriented databases.
- Database replication with MongoDB.

2008–2010 **Dígitro** Florianópolis, Santa Catarina
Trainee

Developing cross platform applications (Windows and Linux) for audio streaming. Development of a prototype for a voice biometrics system.
Main accomplishments:

- Cross compiling code to Windows using mingw.
- Developing a cross platform native application in Python.
- Developing a simple web server in Python.

2007-2008 **Cyclops / LAPIX** Florianópolis, Santa Catarina
Trainee

Developing new features on the DICOMizer, a system responsible to integrate medical equipment to the DICOM system.
Main accomplishments:

- Experience with C++ development and XML parsing.
- Developing a native frontend with C++ and wXwidgets.
- Automating the development environment with Python.
- Test automation using CppUnit.

open source projects

2013 **CppUTest** http://cpputest.github.io

CppUTest is a C /C++ based unit xUnit test framework for unit testing and for test-driving code.
Main accomplishments:

- Improving documentation.
- Implementing new features on the mocking infrastructure.
- Refactoring on the mocking infrastructure.

2012 **GStreamer** http://www.gstreamer.net

GStreamer is a library for constructing graphs of media-handling components.
Main accomplishments:

- Developing the *removesilence* plugin.
- Improving GstCheck documentation.

2010-2011 **Pattern detection on H.264** https://github.com/katcipis/h264.pattern.detection

This project is a prototype of a H.264 CODEC that uses OpenCV and H.264 internal algorithms to do pattern detection and object tracking integrated on the encoding process.
Metadata generated on the encoding process is integrated on the video bit-stream on conformance with the standard.
Main accomplishments:

- Development of research abilities and textual elaboration of the results obtained.
- Usage of a machine learning algorithm (Haar) to detect patterns.
- Object oriented C code integrated to a large C code base (the H.264 reference CODEC).
- Understanding of the motion estimation algorithms present on H.264.
- Writing documents in LaTeX.

2011 **Smartgrid - Access Control** https://github.com/katcipis/smartbuilding.accesscontrol

Access control system designed to work on a smartgrid. Consists on tablets controlling access to the rooms based on a authentication server where the identification is made using RFID.
Also developed the server where new users are registered.
Main accomplishments on the server:

- Developing Python server using the ICE protocol (Internet Communications Engine).
- Document oriented database using CouchDB.
- Native GUI using QT (PySide).
- Integration with a RFID USB reader.

Main accomplishments on the client:

- Developing on Android 3.0, integrating Java and C++ code (using NDK and JNI).
- Communication with a server using the ICE protocol.

2010-2011 **LuaSofia** https://github.com/ppizarro/luasofia

Lua binding for the Sofia-SIP library. Contributed to the project from the start, helping to make decisions about the design of the software and documenting it.
Main accomplishments:

- Binding Lua to C.
- Understanding of the SIP protocol.

2010 **GPS tracking system** https://github.com/katcipis/gps.tracking

System designed to provide the location of a device through SMS.
Main accomplishments:

- Integrating an AVR microcontroller with a G.24 Motorola modem and a GPS.
- C++ code optimized to embedded systems (no heap allocations or kernel involved).
- Understanding of the Motorola G.24 AT protocol.

2010 **LuaNotify** https://github.com/katcipis/luanotify

Lua library that implements the Pub/Sub pattern, inspired on glib GSignal.
Main accomplishments:

- Developing Lua code with TDD.
- Documenting Lua code with LDoc.
- Packaging Lua code with LuaRocks.

interests

professional: web services, cloud computing, test driven development, agile development, software engineering, software architecture, networks, linux, open source, metaprogramming, artificial intelligence, image processing, functional programming, embedded systems

books: The Pragmatic Programmer, Pragmatic Thinking & Learning, Test Driven Development for Embedded C, REST in Practice, Refactoring: Improving the Design of Existing Code.