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Ricardo Cordeiro

Computer science and engineering

About me Throughout my academic journey, I developed an interest in various fields of informatics, such as compilation techniques and robotics. I have attended conventions like [ROSCon](#) and [RoSE](#). Additionally, I have presented my work at different events, including my [Thesis](#) on "Formalization and Runtime Verification of Invariants for Robotic Systems" at [INForum 2022](#), and I have discussed Apache Flink development and challenges during a work-related [Meetup Event](#); you can read more about Flink in my [Medium article](#). In my free time, you can find me learning Japanese or engaging in other interesting hobbies. Feel free to reach out if you'd like to know more!

Experience

May 2023 - Current, Core Technologist at Marionete

Designing and building tailor-made technology platforms. Leveraging cloud-native, open-source, and emerging technologies, I work across development, operations, and infrastructure (DevOps) to create distributed systems with CI/CD pipelines. While the primary focus is on financial services and the insurance sector, unique challenges of various industries are also tackled, aligning solutions with Marionete's technological expertise. I continuously stay up-to-date with the latest advancements to foster innovation.

Sep 2022 - May 2023, Software Developer at Körber Supply Chain

Developed solutions for warehouse management, focusing primarily on creating PL/SQL packages to handle complex business logic. Additionally, I was responsible for designing and implementing the user interface using a Java framework middleware, ensuring seamless integration between backend processes and the end-user experience.

Sep 2019 - Jul 2020, Junior Consultant at ROFF

Provided support services primarily focused on SAP Portal/SAP NetWeaver as a frontend Java framework, with Oracle SQL Developer serving as the persistence layer. Frequently accessed SAP ERP and ABAP code for backend tasks, giving me familiarity with their Model-View-Controller (MVC) architecture. Additionally, I handled various data services through SAP BI or custom Java code. During periods of low support activity, I assisted the development team or created tools to improve efficiency.

Education

2020 - 2023, Masters Degree, Computer science and engineering, Faculdade de Ciências da Universidade de Lisboa

Main Courses: (Average: 14)

- Compilation Techniques: 16
- Artificial Intelligence in Games: 17
- Automatic Learning: 16
- Game Design and Development: 17
- Multi-Agent Systems: 16

Final Dissertation on *"Formalization and Runtime Verification of Invariants for Robotic Systems"* advised by Alcides Fonseca professor at University of Lisbon and by Chris Timperley professor at Carnegie Mellon University.

2016 - 2019, Licentiate Degree, Computer science and engineering, Faculdade de Ciências da Universidade de Lisboa

Main Courses: (Average: 14)

- Information Technology in the User's Perspective: 17
- Computer Network: 16
- Introduction to Operational Research: 16
- Introduction to Programming: 18
- First Order Logic: 17
- Introduction to Probabilities and Statistics: 17

Interesting work

Error Monitor DSL (ros + gazebo) ([GitHub](#)) A domain-specific language to specify properties of robotic systems in ROS. Specifications written by developers in this language can be compiled to a monitor ROS module, that will detect violations of those properties. We have used this language to express the temporal and positional properties of robots, and we have automated the monitoring of some behavioral violations of robots in relation to their state or events during a simulation. I presented this work at [INForum 2022](#).

Proof of Concept: Flink and Kafka Integration During my time at Marionete, I developed a proof of concept (POC) for a client, integrating Apache Flink with Kafka to achieve high-throughput data processing. This POC served as the basis for a work-related [Meetup Event](#) a colleague and I delivered in partnership with Confluent, where we discussed the development and challenges of Apache Flink. Additionally, I authored a Medium article titled [How to Set Up a Local Flink Cluster Using Docker](#).

An Experience Report on Challenges in Learning the Robot Operating System I have helped writing a paper where we describe the challenges and experience of learning ROS from the perspective of novice users. This work was presented by my colleague Paulo Canelas at RoSE 2022.

freakMinimalism A project initiated by a friend, where I developed the website freak-minimalism.com. I am actively involved in all technical aspects, including ongoing maintenance, updates, and optimizations.

Tools and Technologies

Programming Languages

- Java
- Python
- Scala
- C#
- JavaScript
- PL/SQL

Databases

- MongoDB
- Neo4j
- Databricks
- MySQL
- Oracle Database
- SQL Developer

Others

- Apache Kafka
- Docker
- Kubernetes
- Apache Flink
- Grafana
- Prometheus
- Elasticsearch
- OpenShift
- Git
- Jinja
- (GKE) Google Kubernetes Engine
- Unity
- HTML
- JADE
- ROS
- Gazebo
- PLY (Python Lex-Yacc)
- SAP NetWeaver Portal
- Mulesoft
- Spring

Other Experiences

Sports

I practiced federate Basketball since I was 6 up until university, holding at times the title of Captain, I kept playing at university, although at a lower tier.