Bernardo Ribeiro

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SUMMARY

I am a Junior Researcher at INESC-ID Lisbon and a member of the Distributed Systems Group (GDS) under the mentorship of Professors Nuno Santos and Rodrigo Bruno. My research interests encompass Cloud Security and Cloud Computing.
My current research focuses on creating a tool that utilizes static analysis techniques to accurately estimate the costs associated with serverless applications. This project aims to provide developers and organizations with better insights into cost management and avoid unexpected expenses.

EXPERIENCE

Research Intern

INESC-ID, IST **June 2024 - Present, Lisboa**

- Research Intern: Develop a SAST tool to identify potential denial-of-wallet vulnerabilities and estimate the costs of simulated denial-of-wallet attacks in serverless applications.
- **Tech: AWS, GCP, Azure, AWS SAM, Terraform, Python, Javascript, eo4j, CodeQL, Joern.**

Department of Computer Science Engineering, IST **February 2023 - May 2024**

- Developed applications, mostly used by professors, including a MSc Thesis management system.
- Technical support to employees of the DEI.
- Maintained the Department's infrastructure (using Ansible).
- **Tech: Java, Spring Boot, Vue, and Typescript**

NAPE (IST) **September 2021 - July 2022**

- As a reception volunteer, I mentored freshmen and helped them adjust to university life..

EDUCATION

Master's Degree program in Computer Engineering

Instituto Superior Técnico de Lisboa • 2024 • Final Grade 18/20

- Specialization in Cybersecurity and Distributed Systems.
- Academic Merit Diploma 2022-2023.

Bachelor's Degree in Computer Science and Engineering

Instituto Superior Técnico de Lisboa • 2022 • Final Grade 16/20

- Academic Merit Diploma 2020-2021 / 2021-2022.

PROJECTS

Development and deployment of a web application using a Kubernetes cluster on GCP

September 2023 - November 2023

- Development and deployment in GCP, a Django micro-service application related to auctions as a Kubernetes cluster, with automatic Docker pod and node scaling using Terraform.
- High-availability setup with a master-slave architecture featuring a synchronized database system, failover capabilities, node separation, and pod redeployment.
- Performance data from each pod retrieved by Istio's service mesh, aggregated by Prometheus and delivered using Grafana dashboards.
- **Tech: Django, Vue.JS, PostgreSQL, GCP, Kubernetes, Docker, Terraform, Istio, Prometheus, Grafana**

Ledger based on a permissioned blockchain

February 2023 - April 2023

- Blockchain-based on the **Istanbul BFT consensus protocol**, ensuring state machine replication, strongly and weakly consistent reads, allowing network partition tolerance.
- **Tech: Java, Maven, Python.**

SKILLS

Programming Languages: GO, Python, Javascript, JAVA, C/C++, SQL.

Frameworks: Spring boot, Django, Flask, Vue.js, Astro

Tools: Git (+GitHub, GitLab), Serverless Framework, AWS SAM, Terraform, Ansible, Docker, Kubernetes, Nginx

Cloud: AWS (CloudFormation, Lambda, DynamoDB, S3, Step Functions, SQS, SNS, EventBridge), GCP (Cloud Run, Firebase, Cloud Storage) and Azure (Azure Functions, CosmosDB)

Languages: Portuguese (Native), English