David **Belchior**

Software Engineer

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EDUCATION

Instituto Superior Técnico - Universidade de Lisboa   *Cumulative GPA: **18** / 20*
MSc in Computer Science and Engineering   *Sep. 2022 - Oct. 2024*

Instituto Superior Técnico - Universidade de Lisboa   *Cumulative GPA: **18** / 20*
BSc in Computer Science and Engineering   *Sep. 2019 - Jul. 2022*

EXPERIENCE

Banco de Portugal - Legal Enforcement Deparment   *Lisbon, Portugal*
Data Science Intern   *Since Jul. 2024*

- Developing an application for automatic generation of internal documents for the different areas of the Department, articulating internal and external databases. **Tech: Python, Django, JavaScript, jQuery, SQLite, SQL Server, Pandas.**

LaSIGE   *Lisbon, Portugal*
Early Stage Researcher   *Mar. 2024 - Jun. 2024*

- Continuation of the project related to my MSc thesis.

INESC-ID   *Lisbon, Portugal*
Early Stage Researcher   *Feb. 2023 - Jul. 2023; Oct. 2023 - Dec. 2023*

- Feb. 2023 - Jul. 2023: Project related to traffic correlation on the TOR network. **Tech: Python, Terraform, Ansible.**
- Oct. 2023 - Dec. 2023: Project related to identification of national trends in psychopharmacology and contentious polypharmacy events, as part of my **MSc thesis**. **Tech: Python, Django, PostgreSQL, Pandas, Matplotlib.**

Instituto Superior Técnico - Computer Science and Engineering Department (DEI)   *Lisbon, Portugal*
Software Engineer   *May 2022 - Jan. 2023*

- Developer (coordinator since Sep. 2022) and maintainer of the department's PhD management application, where students, staff and faculty can manage applications for doctoral programs and their curricula. **Tech: Python, Django, PostgreSQL.**
- Provided **technical support** for the Department's staff.

PROJECTS

Development and deployment of a web application using a Kubernetes cluster on GCP *Lisbon, Portugal*
Tech: React.JS, Express.JS, MongoDB, GCP, Kubernetes, Docker, Terraform, Istio, Prometheus, Grafana   *Sep. 2023 - Oct. 2023*

- Development and deployment in GCP of a file transfer system as a Kubernetes cluster, with automatic Docker pod and node scaling using Terraform.
- Performance data from each pod retrieved by Istio's service mesh, aggregated by Prometheus and delivered using Grafana dashboards.

Ledger based on a permissioned blockchain   *Lisbon, Portugal*
Tech: Java, Maven, Python   *Feb. 2023 - Apr. 2023*

- Blockchain based on the **Istanbul BFT consensus protocol**, ensuring state machine replication, strongly and weakly consistent reads, allowing network partition tolerance.
- As the best project in this year's edition of the course, it was used as base code for the 2023/24 edition's project.

Long short-term memory (LSTM) model with attention layers   *Lisbon, Portugal*
Tech: Python, Pandas, Pytorch, Matplotlib   *Nov. 2022 - Jan. 2023*

- Implementation of an encoder-decoder-based Spanish to English translator, using an auto-regressive long short-term memory (LSTM) as an encoder and a bidirectional LSTM as a decoder, along with a variant which included a bilinear attention mechanism in the decoder.

SKILLS

Program. Languages	Python, Java, C, C++, C#, Prolog, JavaScript, TypeScript, PostgreSQL, MySQL, SQL Server, MongoDB
Frameworks	Django, Spring, Vue.JS, React.JS, Express.JS, .NET
Data Science	PyTorch, scikit-learn, Pandas, Matplotlib, Pentaho Data Integration, Saiku Analytics
Tools	Git (+ GitHub, GitLab, Gitea), Nginx, Ansible, Terraform, Docker, Kubernetes
Languages	**Portuguese (Native)**, **English (C1)**, Spanish (A2), Japanese (A2), French (A2)