# Gabriel Silva

AI Engineer, PhD Candidate · MAP-i - Doctoral Programme in Computer Science

*University of Aveiro*

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*AI Engineer and Ph.D. Researcher specializing in NLP, RAG architectures, and Knowledge Graphs. Expert in fusing LLMs with Graph Machine Learning to solve complex extraction tasks. Proven track record of securing €25k in funding and deploying production-grade ML models for regional policy analysis.*

## Technical Skills

**Machine Learning & LLMs**: PyTorch, TensorFlow, Scikit-learn, Unsloth, LangChain, RAG architectures, Transformers, Prompt Engineering.

**Data & Knowledge Engineering**: Python, SQL, SPARQL, Neo4j, ElasticSearch, Ontology Alignment, Knowledge Graphs.

**DevOps & Tools**: Docker, Git, Google Cloud Platform, Linux, REST APIs.

## Education

**University of Aveiro & Linköping University**                    *Aveiro, Portugal & Linköping, Sweden*

PhD Computer Science                                                         *2021 - present*
- Multi-lingual Open Information Extraction
- Knowledge Graphs
- Language Models
- Low Resource Information Extraction
- Went to Linköping as an Exchange student and integrated the NLP Group

**University of Aveiro**                                                           *Aveiro, Portugal*

MS Computer Engineering                                                      *2019 - 2021*
- Thesis: Job Offer Alignment with ESCO for Analysis of the Labor Market
- Built and deployed a BERT-based classifier to map job offers to ESCO standards, utilized for regional labor policy analysis.

## Research Interests

Natural Language Processing, Knowledge Graphs, Graph Machine Learning, Large Language Models (LLMs), Information Extraction, Ontology Alignment, Knowledge Engineering

## Experience

**University of Aveiro - IEETA**                                              *Aveiro, Portugal*

Advisor: Dr. Mário Rodrigues                                              *2020-present*
- Architected a novel framework fusing Knowledge Graphs with LLMs to improve Open Information Extraction in Portuguese
- Published several papers with a focus on NLP, Knowledge Graphs and Large Language Models.
- Secured a PhD Grant by FCT.
- Secured €25k in competitive funding from RNCA/Google (Ranked 1st/10) for a project on Graph Machine Learning and NLP.
- Built and deployed a BERT-based classifier to map job offers to ESCO standards, utilized for regional labor policy analysis.

**Linköping University - NLP Group**                                       *Linköping, Sweden*

Advisor: Dr. Marco Kuhlmann                                             *Aug. 2025 - Dec. 2025*
- Exchange student. Collaborated with the NLP Group at Linköping University.

**Assistant Professor - University of Aveiro, ESTGA**  *Aveiro, Portugal*
*2024-2025*

- Mentored 50+ students in Object Oriented Programming and Graph Databases.
- Helped design curriculum and practical labs, translating complex graph theory concepts into deployable code assignments.

**Android Developer - G-Lok Systems**  *England*
*2020*

- Development of an Android app and Web Page for visualization of GPS signals by trucks using IoT devices.

**Web Developer - Turners (Soham)**  *England*
*2017*

- Creation of a web portal to help with yard management and truck positioning for their main loading/repairing site.

## Technical Projects

*Current projects or interests that I have been working on.*

2025-Present. **TTRPG Knowledge Assistant**: Building a RAG-Based Knowledge Assistant to Extract Information and answer questions about lesser well-known TTRPG documentation.

2025-Present. **Local LLM Deployment and Quantization**: Exploring local LLM deployment and quantization of models for consumer hardware.

## Publications

*A small non-exhaustive list of my published and upcoming work. Full list available on my website.*

### PUBLISHED

**Gabriel Silva**, Mário Rodriges, António Teixeira, and Marlene Amorim. 2025. Inductive Learning on Heterogeneous Graphs Enhanced by LLMs for Software Mention Detection. In Proceedings of the Fifth Workshop on Scholarly Document Processing (SDP 2025), pages 164–172, Vienna, Austria. Association for Computational Linguistics

**Gabriel Silva**, Mário Rodriges, António Teixeira, and Marlene Amorim. 2025. Automating Job Post Alignment with ESCO for Labor Market Insights. Emerging Trends in Information Systems and Technologies. WorldCIST 2025

**Gabriel Silva**, Mário Rodriges, António Teixeira, and Marlene Amorim. 2025 Advancing Open Information Extraction for Portuguese by Leveraging Graph Structures and Large Language Models. pages 61-65, Proc. IberSPEECH 2024

### IN REVIEW

**Gabriel Silva**, Mário Rodriges, António Teixeira, and Marlene Amorim. 2026. Benchmarking Portuguese Open Information Extraction. LREC.

**Gabriel Silva**, Mário Rodriges, António Teixeira, and Marlene Amorim. 2026. Deepening Graph-Based Approaches for Portuguese Open Information Extraction with LLM Augmentation. Computer Speech and Language.

## Grants, Awards and Certifications

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| 2024 | **Grant**, 2nd edition of Contest of Advanced Computing Projects – AI on Google Cloud - €25000 in funding |
| 2022 | **Grant**, FCT - PhD Grant (UI/BD/153571/2022) |
| 2019 | **Certificate**, Convolutional Neural Networks - Deeplearning.ai |
| 2019 | **Certificate**, Machine Learning - Stanford University (Online) |

## References

References will be available upon request.