

# MIGUEL VÁZQUEZ

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## WORK EXPERIENCE

### Institute for Data, Process and Knowledge Management, WU Vienna

PhD Researcher

Vienna, Austria  
April 2025 - Present

- Conducting research on **Graph-based AI, Knowledge Graphs, and hybrid AI** (symbolic and sub-symbolic AI).
- Investigating **Knowledge Graph evolution and connectivity** using machine learning and hybrid AI approaches.
- Collaborating with leading research institutions, including **JKU Linz, TU Vienna, TU Graz, ISTA, and AAU Klagenfurt**.

### oga

Data Scientist

Seville, Spain  
June 2023 - March 2025

- Spearheaded the implementation of cutting-edge **generative AI models** in custom applications.
- Developed personalized assistants using **Retrieval Augmented Generation (RAG) pipelines** leveraging **multi-modal unstructured data**.
- Applied **statistical analysis & ML** to diagnose equipment failures for Coca-Cola postmix dispensers, reducing downtime.
- Designed and delivered a **16-hour internal course on LLMs and Transformers** to upskill teams.

Data Scientist Intern

November 2022 - June 2023

- Developed **energy optimization models**, reducing industrial energy consumption by 3%.
- Balanced a **25-hour weekly workload** while achieving the **Best Academic Performance Award** during MSc studies.

## EDUCATION

### Universidad de Sevilla

MSc in Logic, Computation and Artificial Intelligence  
*Best Academic Record 2023*

Seville, Spain  
September 2022 - July 2023

### Bergische Universität Wuppertal

BSc in Mathematics

Wuppertal, Germany  
September 2020 - July 2021

### Universidad de Sevilla

BSc in Mathematics

Seville, Spain  
September 2017 - July 2022

## SKILLS

Graph-Based AI & Semantic Web: Knowledge Graphs, SPARQL, RDF, Ontologies, Reasoning  
AI Engineering: LLMs, Transformers, RAG, Information Retrieval, HuggingFace  
ML Engineering: Data Science, PyTorch, TensorFlow, Microsoft Azure, Databases, Docker, MLOps Model Deployment, Evaluation and Monitoring  
Programming Languages: Python, SQL, JavaScript, HTML, CSS  
Languages: Spanish (Native), English (Proficient), German (Intermediate)

## PROJECT PORTFOLIO [AT MVAZQUEZ.AI]

**LLM Agents** Improved ReAct Agents from pure python adapted to open and proprietary models.  
**Torch Tracer** Hardware optimized Ray tracing parallel implementation in pyTorch.  
**Hero Embeddings** 3D visualization of sentence transformer embedding of fictional heroes wiki pages.  
**ML Ontology** Ontology for ML algorithms using Protege and OWL, incorporating models, meta-algorithms, and evaluation metrics. Included SPARQL queries.

## CERTIFICATES

### Business Fundamentals

Business for All 2024

Harvard Business Publishing  
September 2024

### Azure Data Scientist Associate

Microsoft  
June 2024

### Azure AI Engineer Associate

Microsoft  
February 2024

### IBM Data Science Professional Certificate

IBM  
July 2022