

Yarik Menchaca Resendiz

Stuttgart, Germany

[✉ YarikMenchacaR@gmail.com](mailto:YarikMenchacaR@gmail.com) [📞 +49 151 47565395](tel:+4915147565395)
[LinkedIn](#) [Github](#) [Google Scholar](#) [Website](#)



Profile

Postdoctoral Researcher specializing in Machine Learning, Natural Language Processing, and Large Language Models (LLMs). Proven track record in academic and industry research, with hands-on experience in end-to-end development – data preprocessing, training, fine-tuning, optimization, quantization, prompting, and production deployment of ML models, particularly LLMs. Skilled in teaching and mentoring, and motivated by solving real-world problems through research and applied solutions.

Skills

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| Coding | – Python (8 yrs), SQL (4 yrs), Java (3 yrs), C++ (4 yrs), C# (3 yrs), Matlab (4 yrs), R (2 yrs), ... |
| ML Models | – Training from scratch/fine-tuning/API: Gemini, GPT, LLaMA , T5, BART, Mistral, BERT, KNN, SVM, ... |
| Libraries | – TensorFlow, Keras, PyTorch, Transformers, Scikit-learn, SciPy, NLTK, Spacy, Numpy, Pandas, ... |
| Visualization | – Matplotlib, Seaborn, Pyplot, Graphviz, Shiny, Gephi, Power Bi, Jupyter Notebook. |
| Deployment | – MLOps practices, Docker, Microsoft Azure, Amazon Web Services, Git. |

Professional Experience

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| 02.2025 – Present | – Researcher – Leibniz-Institut (ZIPD), Trier, Germany
– Led the design and development of a Retrieval-Augmented Generation (RAG) system with a user-friendly interface to summarize scientific texts for non-expert users.
– Defined a 37-point evaluation framework and collaborated across a multidisciplinary team. |
| 04.2022 – 01.2025 | – Doctoral Researcher – University of Stuttgart & University of Bamberg, Germany
– Researched Conditional Text Generation by using psychological emotion theories to guide LLMs outputs to improve their emotional intelligence and adaptability.
– Investigated Multi-Objective Prompt Optimization methods for LLMs .
– Conducted research prompt optimization methods for language models, incorporating Reinforcement Learning approaches.
– Mentored and supervised bachelor's and master's students in NLP courses and thesis. |
| 06.2018 – 09.2021 | – Data Scientist – Kantar, México
– Coordinated with commercial teams to align ML solutions with client needs, enhancing brand strategy and market impact.
– Built TextAI's engine a multilingual NLP system for NER , Sentiment Analysis , Machine Translation and Topic Modeling , then led a team to scale TextAI to 10+ languages.
– Developed Machine Translation models to convert specialized language (e.g., legal, medical) into user-friendly language for specific audiences.
– Developed a Recommender System to analyze purchase behavior, suggest relevant products, recommend substitutes, and organize items into categories.
– Developed Model distillation and Quantization Techniques to optimize inference performance and reduce cloud deployment costs. |
| 02.2017 – 08.2017 | – Research Intern – University of Wolverhampton, UK
– Developed a Machine Learning Sentiment Analysis application for Spanish texts. |

Education

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| 2021 – 2025 | – Ph.D. in Computational Linguistics – University of Stuttgart, Germany.
Thesis title: <i>Controlling Affective Variables in Conditional Natural Language Generation</i> . |
| 2015 – 2017 | – M.Sc. Computer Science – Instituto Politécnico Nacional, México.
Final Grade: 9.8/10 (Graduated with Honors).
Thesis title: <i>Stress and Relaxation Strength Detection of Spanish Tweets</i> . |
| 2011 – 2015 | – B.Eng. Computer Science – Instituto Politécnico Nacional, México.
Final Grade: 8.3/10.
Thesis title: <i>Intelligent and Adaptive Alert System for Gas Leak Detection in Stoves with Real-Time Notifications to Email and Mobile Devices</i> . |

Education (continued)

- 2008 – 2011 — **Technician in Computer Systems – CBTis 03, México.**
Final Grade: 9.0/10.
Hardware maintenance, network configuration, software development, system management, database.

Selected Research Publications

- [1] Yarik Menchaca Resendiz and Roman Klinger. “MOPO: Multi-Objective Prompt Optimization for Affective Text Generation”. In: *Proceedings of the 31st International Conference on Computational Linguistics*. Ed. by Owen Rambow et al. Abu Dhabi, UAE: Association for Computational Linguistics, Jan. 2025, pp. 5588–5606. ⚭ URL: <https://aclanthology.org/2025.coling-main.375/>.
- [2] Yarik Menchaca Resendiz et al. “Supporting Plain Language Summarization of Psychological Meta-Analyses with Large Language Models”. In: *IJCNLP-AACL System Demonstrations*. Association for Computational Linguistics. Mumbai, India, 2025.
- [3] Yarik Menchaca Resendiz and Roman Klinger. *LLM-based Affective Text Generation Quality Based on Different Quantization Values*. 2025. arXiv: 2501.19317 [cs.CL]. ⚭ URL: <https://arxiv.org/abs/2501.19317>.
- [4] Johannes Schafer and Yarik Menchaca Resendiz et al. “Which Demographics do LLMs Default to During Annotation?” In: *Proceedings of the 63nd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)*. Association for Computational Linguistics, 2025. ⚭ DOI: 10.18653/v1/2025.acl-long.848.
- [5] Yarik Menchaca Resendiz et al. “IMS_medicALY at #SMM4H 2024: Detecting Impacts of Outdoor Spaces on Social Anxiety with Data Augmented Ensembling”. In: *Social Media Mining for Health Research and Applications (SMM4H 2024) Workshop and Shared Tasks at ACL*. 2024. ⚭ URL: <https://aclanthology.org/2024.smm4h-1.19>.
- [6] Amelie Wuehrl and Yarik Menchaca Resendiz et al. “What Makes Medical Claims (Un)Verifiable? Analyzing Entity and Relation Properties for Fact Verification”. In: *Conference of the European Chapter of the Association for Computational Linguistics (EACL)*. 2024. ⚭ URL: <https://aclanthology.org/2024.eacl-long.124>.
- [7] Yarik Menchaca Resendiz and Roman Klinger. “Affective Natural Language Generation of Event Descriptions through Fine-grained Appraisal Conditions”. In: *International Natural Language Generation Conference*. 2023. ⚭ URL: <https://aclanthology.org/2023.inlg-main.26>.
- [8] Yarik Menchaca Resendiz and Roman Klinger. “Emotion-Conditioned Text Generation through Automatic Prompt Optimization”. In: *1st Workshop on Taming Large Language Models: Controllability in the era of Interactive Assistants! at INLG*. 2023. ⚭ URL: <https://aclanthology.org/2023.tllm-1.3>.

Selected Courses & Certificates

TensorFlow Developer	Introduction to Recommender Systems
Introduction to Deep Learning in Python	R Statistics Essential Training
Deep Learning in Python,	Building Web Applications in R with Shiny Course
Advance Deep Learning with Keras in Python.	Data Analysis in R, the data.table Way
Building Deep Learning Applications with Keras 2.0	Sequences, Time Series and Prediction
Introduction to TensorFlow for Artificial Intelligence	Statistics Foundations
Natural Language Processing in TensorFlow	Design database MYSQL
Convolutional Neural Networks in TensorFlow	Linux administrator
Custom Model, Layers, and Loss Functions with TensorFlow	Web Design Fundamentals
Artificial Intelligence Foundations: Thinking Machines	Fundamentals Building Apps for Wearables
Big Data Processing, exploration with Scala and Apache Spark	Python programmer

Languages

Spanish (Native), **English** (Bilingual), **French** (Advanced), **German** (Intermediate), **Italian** (Basic)

Miscellaneous Experience

Awards and Achievements

- 2021 — CONAHCyT Scholarship – Full funding for Ph.D in Computational Linguistics.
2015 — CONACyT Scholarship – Full funding for M.Sc. in Computer Science.

Thesis Supervision

- 2023 — **Master Thesis**, Plug and Play Domain Adaptation for Neural Machine Translation
Emils Kadikis