


Vladimir ARAUJO

PhD in Computer Science

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PhD researcher working on Natural Language Processing (NLP), with a specific focus on extending existing approaches through the incorporation of mechanisms inspired by human language processing.

EDUCATION

September 2023 August 2018	Ph.D. in Engineering Sciences, KU LEUVEN - PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE, Belgium - Chile <ul style="list-style-type: none">> Focus: Computer Science (Joint PhD) Supervisors: Dr. Marie-Francine Moens, Dr. Alvaro Soto> Thesis Title: Human-inspired Approaches for Natural Language Understanding
August 2017 July 2015	M.Sc. in Electronics Engineering, PONTIFICIA UNIVERSIDAD JAVERIANA, Colombia <ul style="list-style-type: none">> Focus: Robotics and Machine Learning (Cum laude)> Thesis Title: A Robotic System to Train Working Memory
May 2015 September 2009	B.Eng. in Electronics Engineering, UNIVERSIDAD POLITÉCNICA SALESIANA, Ecuador <ul style="list-style-type: none">> Focus: Automation (Second best graduate)> Thesis Title: Humanoid robot control in 3D space using Kinect sensor

EXPERIENCE

Present May 2020	Lecturer, PONTIFICIA UNIVERSIDAD CATÓLICA, Chile <p>Working remotely as a lecturer of the AI certification program, in charge of the classes of:</p> <ul style="list-style-type: none">> Natural Language Processing: Question answering and summarization models.> Introduction to Video Analysis: Video action recognition based on recurrent networks.
September 2023 November 2021	Ph.D. Researcher, KU LEUVEN, Belgium <p>Worked as part of the CALCULUS project, funded by ERC, conducting research on:</p> <ul style="list-style-type: none">> Human-inspired NLP models based on anticipation and memory.> Representation learning for NLP both for English and Spanish.
April 2023 June 2022	Machine Learning Engineer, THEODORA AI, Chile <p>Worked remotely at Theodora start-up developing their first algorithm for bias detection:</p> <ul style="list-style-type: none">> Implemented an approach to bias detection on texts by leveraging pre-trained language models.> Constructed a synthetic dataset for various biases. Deployed a platform for labeling real text.
December 2021 July 2021	Visiting Researcher, UNIVERSITY OF WESTERN ONTARIO, Canada <p>Worked in the Cognitive Engineering Laboratory under the supervision of Dr. Mercer, researching on:</p> <ul style="list-style-type: none">> Evaluation of representations from pre-trained language models in Spanish. SentEval and DiscoEval versions in Spanish were constructed to perform the evaluation.> Improvement of memory networks for story processing and understanding.
July 2021 August 2018	Ph.D. Researcher, MILLENNIUM INSTITUTE FOUNDATIONAL RESEARCH ON DATA (IMFD), Chile <p>Worked as part of the "emblematic project on XAI" conducting research on:</p> <ul style="list-style-type: none">> Fake news and social networks leveraging attention as an interpretation method.> Construction of a dataset for controversy based on Chilean social networks.
December 2021 March 2019	Teaching Assistant, PONTIFICIA UNIVERSIDAD CATÓLICA, Chile <p>Assistant of the classes of:</p> <ul style="list-style-type: none">> Recommender Systems (2021-2): Guide laboratory of deep learning for recommender systems.> Recommender Systems (2020-2): Guide laboratory of collaborative filtering.> Machine Learning (2019-2): Guide laboratory of clustering algorithms.> Cognitive Robotics (2019-1): Guide laboratory of searching algorithms.
December 2019 January 2014	Co-Founder, AV ELECTRONICS, Ecuador <p>Started an electronic device supply and project development business. In charge of:</p> <ul style="list-style-type: none">> Project management: Led the implementation of client solutions based on software and hardware.> Import management: Coordinate the movement of goods from different countries to Ecuador.
July 2018 April 2015	Lecturer, INSTITUTO TECNOLÓGICO CEMLAD, Ecuador <p>Worked as a lecturer of the electronics technology career, in charge of:</p> <ul style="list-style-type: none">> Virtual and in-person lectures on microcontrollers, analog and digital electronics.> Interim career head in charge of career activities and reorganization of the syllabus.
March 2015 January 2015	Fabrication Laboratory Assistant, UNIVERSIDAD POLITÉCNICA SALESIANA, Ecuador <p>Assistant at the FabLab of the University. In charge of:</p> <ul style="list-style-type: none">> Guide laboratory of printed circuit board fabrication and assembly.> Design and manufacture of printed circuit boards for research projects.

LANGUAGES

- > Spanish (Native)
- > English (Fluent)

TECHNICAL SKILLS

- > Python, Java, Matlab, C++
- > Pytorch, Tensorflow
- > HuggingFace, spaCy, NLTK
- > Google Cloud Platform

SOFT SKILLS

- > Academic writing
- > Public speaking
- > Ability to collaborate
- > Organization

FUNDING AND AWARDS

- 2022 **Google Latin America Research Award** (LARA 2021) for doctoral research
- 2021 **ELAP scholarship** for short-term research exchange at Western University Canada
- 2020 **ANID scholarship** for doctoral studies in Chile
- 2019 **VRI scholarship** for doctoral studies in Chile
- 2018 **IMFD scholarship** for doctoral studies in Chile
- 2017 **Cum laude distinction** in Master's studies
- 2017 **Distinction awarded** for the best Master's Thesis
- 2015 **ICETEX scholarship** for Master's studies in Colombia
- 2015 **Award** for the second-best graduate in undergraduate studies

TALKS AND PRESENTATIONS

- 2023 *Present and future of LLMs*, Yachay Tech University (Invited Talk)
- 2023 *Prediction and Integration for Natural Language Processing*, LAMP@University of Copenhagen (Invited Talk)
- 2020 *Evolution of NLP*, CREW20@Tecnológico de Morelia (Invited Talk)
- 2019 *Trying to reach the state of the art*, Universidad Politécnica Salesiana (Invited Talk)

SELECTED PUBLICATIONS

- [1] V. Araujo, M.-F. Moens, and A. Soto, "Learning sentence-level representations with predictive coding", *Machine Learning and Knowledge Extraction*, vol. 5, no. 1, pp. 59–77, 2023.
- [2] V. Araujo, A. Soto, and M.-F. Moens, "A memory model for question answering from streaming data supported by rehearsal and anticipation of coreference information", in *Findings of the Association for Computational Linguistics: ACL 2023*, Toronto, Canada, 2023.
- [3] V. Araujo, H. Balabin, J. Hurtado, A. Soto, and M.-F. Moens, "How relevant is selective memory population in lifelong language learning?", in *Proceedings of the 2nd Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics and the 12th International Joint Conference on Natural Language Processing*, 2022.
- [4] V. Araujo, A. Carvallo, S. Kundu, J. Cañete, M. Mendoza, R. E. Mercer, F. Bravo-Marquez, M.-F. Moens, and A. Soto, "Evaluation benchmarks for spanish sentence representations", in *Proceedings of the 13th Language Resources and Evaluation Conference*, Marseille, France, 2022.
- [5] V. Araujo, J. Hurtado, A. Soto, and M.-F. Moens, "Entropy-based stability-plasticity for lifelong learning", in *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, 2022.
- [6] J. Cañete, S. Donoso, F. Bravo-Marquez, A. Carvallo, and V. Araujo, "Albeto and distilbeto: Lightweight spanish language models", in *Proceedings of the 13th Language Resources and Evaluation Conference*, 2022.
- [7] V. Araujo, A. Carvallo, C. Aspillaga, C. Thorne, and D. Parra, "Stress test evaluation of biomedical word embeddings", in *Proceedings of the 20th Workshop on Biomedical Language Processing*, Online, 2021.
- [8] V. Araujo, A. Villa, M. Mendoza, M.-F. Moens, and A. Soto, "Augmenting BERT-style models with predictive coding to improve discourse-level representations", in *Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing*, Online and Punta Cana, Dominican Republic, 2021.
- [9] A. Villa, J.-M. Perez-Rua, V. Araujo, J. C. Niebles, V. Escorcia, and A. Soto, "Tnt: Text-conditioned network with transductive inference for few-shot video classification", in *BMVC*, 2021.
- [10] C. Aspillaga, A. Carvallo, and V. Araujo, "Stress test evaluation of transformer-based models in natural language understanding tasks", English, in *Proceedings of The 12th Language Resources and Evaluation Conference*, Marseille, France, 2020.
- [11] A. Villa, V. Araujo, F. Cattán, and D. Parra, "Interpretable contextual team-aware item recommendation: Application in multiplayer online battle arena games", in *Fourteenth ACM Conference on Recommender Systems*, ser. RecSys '20, Virtual Event, Brazil, 2020.
- [12] V. Araujo, F. Rios, and D. Parra, "Data mining for item recommendation in moba games", in *Proceedings of the 13th ACM Conference on Recommender Systems*, ser. RecSys '19, Copenhagen, Denmark, 2019.

REFERENCES

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