

# Vladimir ARAUJO VÁSQUEZ

## PhD Student in Computer Science

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I am an Electronics Engineer and Ph.D. student in Computer Science. My main research interest is Deep Learning for Natural Language Processing, specifically on how to extend current approaches with mechanisms inspired by human language processing. I firmly believe that the use of Artificial Intelligence will be a benefit for various aspects of society.

## EDUCATION

Present 2018	<b>Ph.D. in Engineering Sciences, PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE - KU LEUVEN, Chile - Belgium</b> <ul style="list-style-type: none"><li>&gt; Mention : Computer Science</li><li>&gt; Research Title : Prediction and Integration for Natural Language Representation</li></ul>
2017 2015	<b>M.Sc. in Electronics Engineering, PONTIFICIA UNIVERSIDAD JAVERIANA, Colombia</b> <ul style="list-style-type: none"><li>&gt; Mention : Intelligent Robotics (Cum laude)</li><li>&gt; Thesis Title : SiREM Robotic System to Train Working Memory</li></ul>
2015 2009	<b>B.Eng. in Electronics Engineering, UNIVERSIDAD POLITÉCNICA SALESIANA, Ecuador</b> <ul style="list-style-type: none"><li>&gt; Mention : Automation (Second best graduate)</li><li>&gt; Thesis Title : Humanoid robot control in 3D space using Kinect sensor</li></ul>

## PROJECTS

### EXPLAINABLE ARTIFICIAL INTELLIGENCE

2018 - PRESENT

[Website](#)

This Emblematic Project, funded by the Millennium Institute Foundational Research on Data (IMFD), has the objective of developing evolved AI techniques, advancing from systems based on memorizing patterns to one based on the semantic comprehension of these patterns and the learning of abstractions or procedures that promote high level reasoning.

Interpretability Explanability Deep Learning

### SIREM : ROBOTIC SYSTEM TO TRAIN WORKING MEMORY

2016 - 2017

[PUJ Repository](#)

A robotic system was developed to give a novel way to train the working memory, expecting a better result than classic video games to improve students' cognitive abilities. It consists of a robotic platform controlled by artificial intelligence to develop a memory game. Project carried out at the Pontificia Universidad Javeriana.

Serious Games Educational Robotics Machine Learning

## EXPERIENCE

Present August 2018	<b>Researcher, MILLENNIUM INSTITUTE FOUNDATIONAL RESEARCH ON DATA (IMFD), Chile</b> <ul style="list-style-type: none"><li>&gt; Research on topics related to fake news and social networks</li><li>&gt; Development of interpretable models</li></ul> <p>PyTorch Python Natural Language Processing Graph Networks</p>
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Present May 2020	<b>Lecturer, PONTIFICIA UNIVERSIDAD CATÓLICA, Chile</b> <p>Lecturer of the AI certification program, in charge of the classes of :</p> <ul style="list-style-type: none"><li>&gt; Natural Language Processing</li><li>&gt; Video Analysis</li></ul> <p>PyTorch Python Natural Language Processing Computer Vision</p>
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December 2021 July 2021	<b>Visiting Researcher, WESTERN UNIVERSITY - COGNITIVE ENGINEERING LABORATORY, Canada</b> <ul style="list-style-type: none"><li>&gt; Research on memory networks</li><li>&gt; Research on Spanish benchmarks</li></ul> <p>PyTorch Python Natural Language Processing</p>
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December 2021 March 2019	<b>Teaching Assistant, PONTIFICIA UNIVERSIDAD CATÓLICA, Chile</b> Assistant of the classes of : <ul style="list-style-type: none"> <li>&gt; Recommender Systems (2021-2)</li> <li>&gt; Recommender Systems (2020-2)</li> <li>&gt; Machine Learning (2019-2)</li> <li>&gt; Cognitive Robotics (2019-1)</li> </ul> <div>Python Keras PyTorch Computer Vision Information Retrieval</div>
Present January 2014	<b>Co-Funder, AV ELECTRONICS, Ecuador</b> <ul style="list-style-type: none"> <li>&gt; Project manager</li> <li>&gt; Import manager</li> </ul> <div>Electronics Management</div>
July 2018 April 2015	<b>Lecturer, INSTITUTO TECNOLÓGICO CEMLAD, Ecuador</b> Lecturer of the electronics technology career, in charge of : <ul style="list-style-type: none"> <li>&gt; Virtual and face-to-face lectures of microcontrollers, analog and digital electronics</li> <li>&gt; Organization of scheduled activities</li> </ul> <div>Electronics Microcontrollers Programming</div>
March 2015 January 2015	<b>Laboratory Assistant, UNIVERSIDAD POLITÉCNICA SALESIANA, Ecuador</b> Assistant at the FabLab of the University. In charge of : <ul style="list-style-type: none"> <li>&gt; Guide laboratory practices</li> <li>&gt; Design and manufacture of printed circuit boards</li> </ul> <div>FabLab PCB Microcontrollers</div>
December 2018 April 2014	<b>Instructor, MASTOOSFE, Ecuador</b> Lecturer of technical courses : <ul style="list-style-type: none"> <li>&gt; Introduction to programming</li> <li>&gt; OOP</li> </ul> <div>Java C++</div>

## LANGUAGES

Spanish ● ● ● ● ●  
 English ● ● ● ● ○

## FORCES

- > Hard-working
- > Patient
- > Autonomous

## FUNDING AND AWARDS

- 2020 ELAP **scholarship** for short-term research exchange at Western University Canada
- 2020 **Scholarship** to attend the International Meeting on Artificial Intelligence and its Applications (RIIAA 2020)
- 2020 **Scholarship** for attending the Lisbon Machine Learning School (LxMLS 2020)
- 2020 WiNLP's **grant** for attending ACL20
- 2020 ANID **scholarship** for doctoral studies in Chile
- 2019 **Scholarship** to attend the Latin American Meeting in Artificial Intelligence (Khipu19)
- 2019 ACM SIGCHI Gary Marsden **fund award** to attend RecSys19
- 2019 VRI **scholarship** for doctoral studies in Chile
- 2018 IMFD **scholarship** for doctoral studies in Chile
- 2017 **Scholarship** for an internship at RUND University of Russia
- 2017 Cum laude **distinction** in Master's studies
- 2017 **Distinction** awarded to 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

- 2021 *Augmenting BERT-style Models with Predictive Coding to Improve Discourse-level Representations*, EMNLP (Poster-Virtual)
- 2021 *Stress Test Evaluation of Biomedical Word Embeddings*, BioNLP21@NAACL21 (Poster-Virtual)
- 2020 *Evolution of NLP*, CREW20@Tecnológico de Morelia, (Invited Talk)
- 2020 *Interpretable Contextual Team-aware Item Recommendation*, RecSys20 (Poster-Virtual)
- 2020 *Adversarial Evaluation of BERT for Biomedical Named Entity Recognition*, WiNLP20@ACL20 (Poster-Virtual)
- 2019 *Trying to reach the state of the art*, Universidad Politécnica Salesiana (Invited Talk)
- 2019 *BERT's Behaviour Evaluation using Stress Tests*, Khipu19 (Poster)
- 2019 *Data Mining for Item Recommendation in MOBA Games*, RecSys19 (Poster)

## ADDITIONAL ACTIVITIES

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- 2021 *Mexican NLP Summer School*, Mexico-Virtual
- 2020 *RIIAA Summer School - Conference*, Mexico-Virtual
- 2020 *Lisbon Machine Learning Summer School LxMLS*, Portugal-Virtual
- 2019 *Latin American Meeting In Artificial Intelligence Khipu*, Uruguay
- 2019 *RecSys Summer School*, Sweden
- 2019 *Workshop IMFD*, Chile

## PUBLICATIONS

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- ARAUJO, Vladimir, Andrés CARVALLO, Carlos ASPILLAGA, Camilo THORNE et Denis PARRA (juin 2021). "Stress Test Evaluation of Bio-medical Word Embeddings". In : *Proceedings of the 20th Workshop on Biomedical Language Processing*. Online : Association for Computational Linguistics, p. 119-125. URL : <https://www.aclweb.org/anthology/2021.bionlp-1.13>.
- ARAUJO, Vladimir, Andrés VILLA, Marcelo MENDOZA, Marie-Francine MOENS et Alvaro SOTO (nov. 2021). "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 et Punta Cana, Dominican Republic : Association for Computational Linguistics, p. 3016-3022. URL : <https://aclanthology.org/2021.emnlp-main.240>.
- VILLA, Andrés, Juan-Manuel PEREZ-RUA, Vladimir ARAUJO, Juan Carlos NIEBLES, Victor ESCORCIA et Alvaro SOTO (2021). "TNT : Text-Conditioned Network with Transductive Inference for Few-Shot Video Classification". In : *BMVC*.
- ARAUJO, Vladimir, Andrés CARVALLO et Denis PARRA (2020). "Adversarial Evaluation of BERT for Biomedical Named Entity Recognition". In : *Proceedings of the 2020 Workshop on Widening NLP*. Association for Computational Linguistics.
- ASPILLAGA, Carlos, Andrés CARVALLO et Vladimir ARAUJO (2020). "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 : European Language Resources Association, p. 1882-1894. ISBN : 979-10-95546-34-4. URL : <https://www.aclweb.org/anthology/2020.lrec-1.232>.
- CERDA-MARDINI, Patricio, Vladimir ARAUJO et Alvaro SOTO (2020). "Translating Natural Language Instructions for Behavioral Robot Navigation with a Multi-Head Attention Mechanism". In : *Proceedings of the 2020 Workshop on Widening NLP*. Association for Computational Linguistics.
- VILLA, Andrés, Vladimir ARAUJO, Francisca CATTAN et Denis PARRA (2020). "Interpretable Contextual Team-Aware Item Recommendation : Application in Multiplayer Online Battle Arena Games". In : *Fourteenth ACM Conference on Recommender Systems*. RecSys '20. Virtual Event, Brazil : Association for Computing Machinery, p. 503-508. ISBN : 9781450375832. DOI : [10.1145/3383313.3412211](https://doi.org/10.1145/3383313.3412211). URL : <https://doi.org/10.1145/3383313.3412211>.
- ARAUJO, Vladimir, Diego MENDEZ et Alejandra GONZALEZ (2019). "A Novel Approach to Working Memory Training Based on Robotics and AI". In : *Information* 10.11, p. 350. DOI : [10.3390/info10110350](https://doi.org/10.3390/info10110350). URL : <https://doi.org/10.3390/info10110350>.
- ARAUJO, Vladimir, Felipe RIOS et Denis PARRA (2019). "Data Mining for Item Recommendation in MOBA Games". In : *Proceedings of the 13th ACM Conference on Recommender Systems*. RecSys '19. Copenhagen, Denmark : ACM, p. 393-397. ISBN : 978-1-4503-6243-6. DOI : [10.1145/3298689.3346986](https://doi.org/10.1145/3298689.3346986). URL : <http://doi.acm.org/10.1145/3298689.3346986>.
- ARAUJO, Vladimir, Alejandra GONZALEZ et Diego MENDEZ (2018). "Dynamic Difficulty Adjustment for a Memory Game". In : *Communications in Computer and Information Science*. Springer International Publishing, p. 605-616. DOI : [10.1007/978-3-030-05532-5\\_46](https://doi.org/10.1007/978-3-030-05532-5_46). URL : [https://doi.org/10.1007/978-3-030-05532-5\\_46](https://doi.org/10.1007/978-3-030-05532-5_46).

## REFERENCES

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