

# Juan Vásquez

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## EDUCATION

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### PhD. in Computer Science

August 2023 – Present

*University of Colorado Boulder*

*Boulder, USA*

**Adviser:** Dr. Maria Leonor Pacheco

**Co-adviser:** Dr. Alexis Palmer

### MS. in Computer Science (Graduation in process)

August 2021 – June 2023

*Applied Mathematics and Systems Research Institute (IIMAS) at UNAM*

*Mexico City, Mexico*

**Thesis:** *A neuro-symbolic approach for automatic classification of hateful language in Mexican Spanish using simply-typed  $\lambda$ -calculus*

**Adviser:** Dr. Gemma Bel Enguix

### BS. in Engineering Physics

January 2015 – December 2019

*Universidad Iberoamericana*

*Mexico City, Mexico*

**Graduation project:** *Data mining: Searching for Chaos in Polynomial Ordinary Differential Equations*

**Adviser:** Prof. Salvador Carrillo Moreno

## NON-FORMAL EDUCATION

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### The 34th European Summer School on Language, Logic and Information

July 31 – Aug 11, 2023

*University of Ljubljana, Faculty of Computer and Information Science*

*Ljubljana, Slovenia*

### The 13th Lisbon Machine Learning School

July 14 – 20, 2023

*Instituto Superior Técnico*

*Lisbon, Portugal*

### Summer school on Neurosymbolic Programming

July 11 – 13, 2022

*California Institute of Technology*

*Pasadena California, USA*

### Data Science Workshop (six two-hour sessions)

March – April, 2018

*Universidad Iberoamericana*

*Mexico City, Mexico*

## PEER-REVIEWED MANUSCRIPTS

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Bel-Enguix, Gemma, Helena Gómez-Adorno, Gerardo Sierra, **Juan Vásquez**, Scott Thomas Andersen, and Sergio Ojeda-Trueba. “Overview of HOMO-MEX at Iberlef 2023: Hate speech detection in Online Messages directed Towards the MEXican Spanish speaking LGBTQ+ population.” *Procesamiento del Lenguaje Natural* 71 (2023): 361-370.

**Vásquez, Juan**, Scott Andersen, Gemma Bel-Enguix, Helena Gómez-Adorno, and Sergio-Luis Ojeda-Trueba. “Homo-mex: A mexican spanish annotated corpus for lgbt+ phobia detection on twitter.” In *The 7th Workshop on Online Abuse and Harms (WOAH)*, pp. 202-214. 2023.

Bel-Enguix, Gemma, Gerardo Sierra, Helena Gómez-Adorno, Juan-Manuel Torres-Moreno, Jesus-German Ortiz-Barajas, and **Juan Vásquez**. “Overview of PAR-MEX at Iberlef 2022: Paraphrase Detection in Spanish Shared Task.” *Procesamiento del Lenguaje Natural* 69 (2022): 255-263.

Enguix, Gemma Bel, Helena Gómez-Adorno, Karla Mendoza, Grigori Sidorov, and; **Juan Vásquez**. “La# felicidad en Twitter:¿ qué representa realmente?.” *Linguamatica* 14, no. 1 (2022): 3-15.

**Vásquez, Juan**, Gemma Bel-Enguix, Scott Thomas Andersen, and Sergio-Luis Ojeda-Trueba. “Heterocorpus: A corpus for heteronormative language detection.” In *Proceedings of the 4th Workshop on Gender Bias in Natural Language Processing (GeBNLP)*, pp. 225-234. 2022.

**Vásquez, Juan**, Helena Gómez-Adorno, and Gemma Bel-Enguix. “Bert-based Approach for Sentiment Analysis of Spanish Reviews from TripAdvisor.” In *IberLEF@ SEPLN*, pp. 165-170. 2021.

## TEACHING EXPERIENCE

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### Introduction to NLP with Python (fifteen two-hour sessions)

*Language Engineering Group (Grupo de Ingeniería Lingüística) at UNAM*

Mexico City, Mexico

September 2021 – July 2022

- Created all the materials for the course.
- Presented each one of the fifteen sessions.
- Assisted the students through the course.

### Introduction to Programming with Python

*Prepa Ibero*

Mexico City, Mexico

January 2023 – June 2023

- Created all the materials for the course.
- Taught the materials through the semester to two groups.
- Graded the students.

## EMPLOYMENT

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### University of Arizona

*Consultant - NLP Engineer*

March 2023 – August 2023

*Mexico City, Mexico*

- Performed automatic classification experiments on a corpus of crime-related news from Honduras, El Salvador, and Guatemala.
- Fine-tuned and evaluated different pre-trained multilingual language models with a manually annotated corpus of crime-related news from Mexico.
- Wrote various scripts for data cleaning and data pre-processing.

### Beet Consulting

*Data Consultant*

June 2018 – January 2021

*Mexico City, Mexico*

- Wrote all the necessary code for the data pre-processing, data analysis, and data visualizations requested by the clients.
- Presented slides to various executives in order to help them have a better understanding of their HR departments.

### GMEC Consulting

*Business Analyst*

October 2014 – July 2016

*Mexico City, Mexico*

- Contributed to the creation of various presentations for clients.
- Researched relevant data for various projects.

## OTHER ACADEMIC ACTIVITIES

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### Keynote Talk

*The State of NLP in Latin America | Queer in AI @ ACL 2023 Workshop.*

July 2023

### Reviewer

- EasyChair paper subreview | Mexican International Conference on Artificial Intelligence 2022.

August 2022

## OTHER PROFESSIONAL ACTIVITIES

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### ABIOGENESIS Project | Fundación Cisneros

*Software Developer*

January 2021 – August 2021

- Planned, designed and worked on the computational aspects of the ABIOGENESIS project. The goal of this project was to digitize a custom painting, detect and modify its components using a machine learning algorithm, and create a new digital image that could be shown in an art installation that explored the intersection between art and artificial intelligence.
- Supervised the manual annotation of an image dataset, in order to train a custom object detection model.
- Wrote code that performed object detection on the digitized image created from the original painting. After the object detection, the objects changed their RGB values in order to simulate change in their physical properties.

## VOLUNTEER EXPERIENCE

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**Plural Ibero** | Universidad Iberoamericana

*August 2017 – July 2018*

- Helped organize, conduct, and moderate various talks for the *human diversity week* - five days in which the University allotted the Organization a budget that allowed us to create, promote, and execute various events that would create consciousness of the particular struggles faced by the LGBT+ population.
- Organized and conducted a weekly queer theory reading group with the members of the student association. Each session I would propose a reading, and I would encourage discussions around it.

## SKILLS

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**Programming languages:** Python (advanced), Java (coursework), C++ (coursework), R (coursework), Haskell (coursework), Coq (master's thesis work).

**Libraries:** pandas, NumPy, Matplotlib, spaCy, openCV, NLTK.

**Frameworks:** TensorFlow, PyTorch.

**Spoken languages:** Spanish (native), English (advanced), French (intermediate).