

Juana Valeria Hurtado

PhD Student

Robot Learning Lab

Albert Ludwigs University of
Freiburg, Germany

WORK

EXPERIENCE

Juana Valeria Hurtado

Freiburg, Germany

EMAIL:

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PhD Student

Robot Learning Lab

11/2019 - present

Topics: Self-Supervised Learning for Multimodal Perception, Human-Object Interaction Detection and Forecasting, Joint Vision and Language Learning, Segmentation of Unseen Objects (Outlier detection), Domain Adaptation & Generalization for Perception and Control, Multitask Learning for Automated Driving.

Data Scientist

Jam City

11/2018 - 10/2019

Topics: Automatic recommendation systems, anomaly detection in time series, selection of relevant features for behavior prediction, identification of groups of users, data cleaning (ETL).

Tools: pySpark, scikit-learn, numpy, pandas, bokeh, plotly, scipy, SQL.

Master Electronics Engineer

Center for Bioinformatics and Computational Biology of Colombia (B I O S)

11/2019

Designed and implemented a database containing information of universities and companies working on computer vision with specific experience recognition of vehicle plates, faces and objects.

Research Assistant

Signal Processing and Recognition Group

National University of Colombia

07/2015 - 10/2018

Topics: Pathology classification (LDA, K-NN, SVM), signals processing (filtering, feature extraction), brain computer interfaces (online implementation, interactive systems), statistical analysis (parametric and non-parametric tests), data analysis (PCA, kernel spaces projection), predictive models, data visualization.

Tools: scikit-learn, numpy, pyqt, mne-python, scipy, Matlab.

Electronic engineer

Caldas University

09/2017 - 12/2017

Implemented a sound composition software controlled by the frequency behavior of EEG signals.

Electronic engineer
Center for Bioinformatics and Computational Biology of Colombia (BIO S)

07/2017 - 10/2017

Developed an application called: "Brain waves", by implementing the extraction, processing, and visualization of frequential components of EEG signals in Python.

Instructor/Lecturer
Caldas University

08/2016

Instructor of the course "Signals processing".
Topics: Fundamentals of digital processing, digital filters, principles of digital images and audio processing.

Instructor/Lecturer
National University of Colombia
Faculty of Engineering and Architecture

02/2016 - 05/2016

Instructor of the course "Signals theory".
Topics: Signals and systems, signal representation, information theory, communications.

Web developer
Newshore - Manizales

12/2014 - 06/2015

Django/Python, HTML, CSS, javascript, SQL.

**RESEARCH
EXPERIENCE**

Development of a diagnostic support system and early detection of Alzheimer's disease based on functional connectivity measurements from electroencephalographic records

Master Student

2016 - 2018

Project funded by Colciencias (Administrative department of science technology and innovation of Colombia) (project 744/16).

Development of a brain activity monitoring system based on electroencephalographic records in patients under general anesthesia for surgical environments

Master Student

2016 - 2018

Project funded by Colciencias (project 744/16).

EDUCATION

PhD in Computer Science

11/2019 - present

Albert Ludwigs University of Freiburg
Faculty of Engineering

Master – Industrial Automatization

2016 - 2018

National University of Colombia
Faculty of Engineering and Architecture
Special mention: Meritorious Thesis

Bachelor – Electronics Engineering

2010 - 2014

National University of Colombia
Faculty of Engineering and Architecture
GPA: 4.5/5.0

PROFESSIONAL SKILLS

Languages:

SPANISH: Native

ENGLISH: Fluent

GERMAN: Basic

Theoretical Background:	Programming Languages:
Deep Learning Algorithms Machine Learning Algorithms Data Mining and Visualization Tools Data and Quantitative Analysis Decision Analytics Predictive Modeling Big Data Queries and Interpretation KPI Dashboards Anomaly detection Data-Driven Personalization Clustering Digital signal processing Pattern recognition EEG signal processing Brain Connectivity Brain-Computer Interfaces	Python: Advanced Matlab: Advanced SQL: Medium Spark: Basic R: Basic Others: Git (version control), Databricks(Clustering framework), Latex(Editing environment), Django(Web framework), HTML+CSS.

HONORS AND AWARDS

Scholarship: "Graduate School of Robotics"

11/2019 - present

Department of Computer Science, University of Freiburg.

Scholarship: "Jóvenes investigadores e innovadores"

2016 - 2017

Project funded by Colciencias and National University of Colombia (Project # 706).

Scholarship for undergraduate studies

07/2010 - 06/2011 and 07/2014

Each semester, the National University of Colombia awards to the students with the highest GPA, a Scholarship for the next semester.

PARTICIPATION IN GROUPS

Member of the "Robot Learning Lab".

University of Freiburg

11/2019 - present

Manizales, Colombia

Member of the "Signal Processing and Recognition Group".

National University of Colombia

2014 - 2018

Manizales, Colombia

Visiting master student in the "Brain State Decoding Lab".

Albert-Ludwigs-Universität Freiburg

10/2016 - 05/2017

Freiburg, Germany

PUBLICATIONS

MOPT: Multi-Object Panoptic Tracking

2020

Hurtado, Juana Valeria and Mohan, Rohit and Valada, Abhinav
The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
Workshop on Scalability in Autonomous Driving, 2020

Supervised piecewise network connectivity analysis for enhanced confidence of auditory oddball tasks

2019

Jl Padilla-Buritica, JV Hurtado, G Castellanos-Dominguez
Biomedical Signal Processing and Control

Functional Connectivity Analysis Using the Oddball Auditory Paradigm for Attention Tasks

2018

JV Hurtado, et al.
International Conference on Brain Informatics, Arlington, TX, USA

EEG Channel Relevance Analysis Using Maximum Mean Discrepancy on BCI Systems

2018

DF Luna-Naranjo, JV Hurtado-Rincon, D Cárdenas-Peña , et al.
Iberoamerican Congress on Pattern Recognition, Madrid, Spain

Identification of relevant inter-channel EEG connectivity patterns: a kernel-based supervised approach

2016

JV Hurtado , et al.

International Conference on Brain Informatics, Omaha, USA

Motor imagery classification using feature relevance analysis: An Emotiv-based BCI system

2014

JV Hurtado , et al.

Symposium of Signals, Images and Artificial Vision, Armenia, Colombia

Inclusion of temporal constraints in the EEG inverse problem: A comparative study

2013

JV Hurtado , et al.

Symposium of Signals, Images and Artificial Vision, Bogotá, Colombia

**OTHER
RESEARCH
RESULTS**

BRAINSORE

Software

2018

Bainscore is a sound composition system that uses the frequency behavior of a user EEG signals to create atonal music compositions.

<https://www.youtube.com/watch?v=3vD-7dyoJJo>

python-brain-rhythms

Software

2018

python-brain-rhythms is an open source code developed in the Signal Processing and Pattern Recognition Research Group at the Universidad Nacional de Colombia for preprocessing EEG signals and to obtain, analyze, and graph brain rhythms.