

Ricardo Rossiter Barioni

PERSONAL DETAILS

<i>Birth</i>	April 22, 1996
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SUMMARY

Skilled Machine Learning Engineer with expertise in deep learning, audio/speech processing, NLP, computer vision, and academic research. Involved in projects across various fields such as human pose estimation, face recognition, and audio source classification. Interested in pursuing innovative solutions and continuous learning in the field of AI.

EXPERIENCE

Machine Learning Engineer @ SiDi

Jan 2021 - Current

- Involved in the development of NLP, audio and speech processing-based solutions.
- Researched and published papers for the task of acoustic source classification.

Academic Researcher @ Voxar Labs

Aug 2016 - Aug 2020

- Carried out research in various fields and published academic papers.
- Established partnerships with companies by providing research as a product.
- Created a framework for quickly and easily creating human pose estimation datasets.
- Researched state-of-the-art solutions for face recognition in images.
- Led research on 3D object reconstruction solutions from RGB images.
- Developed a tool for visualizing bat tracking data from thermal images.
- Investigated the feasibility of augmented reality-based solutions for physiotherapy rehabilitation.

EDUCATION

M.Sc. in Computer Science

Informatics Center (CIn), Federal University of Pernambuco (UFPE)

Aug 2018 - Jul 2020

B.Sc. in Computer Science

Informatics Center (CIn), Federal University of Pernambuco (UFPE)

Apr 2014 - Jul 2018

SKILLS

<i>Languages</i>	Portuguese (native), English (fluent)
<i>Software</i>	Python, TensorFlow, PyTorch, Keras, OpenCV, NumPy, Matplotlib, Pandas, scikit-learn, Bash, SQLite, Git, Docker, LaTeX
<i>Interests</i>	Deep Learning, Transformers, Audio and Speech Processing, Natural Language Processing, Computer Vision

PROJECTS

HuTrain

2020

This project is a framework for creating human pose estimation datasets quickly and easily. By using Python and libraries such as PyTorch and OpenCV, HuTrain comprises steps such as automatic camera calibration, refined human pose estimation and known dataset formats conversion.

Dog Breed Recognition

2020

This project is an algorithm for recognizing dog breeds from RGB images. By using Python and the PyTorch open-source machine learning framework, it applies convolutional neural network techniques for the classification of dog breeds and supports the enrolling of new dog breeds dynamically.

Credit Risk Analysis

2020

A project for the evaluation of the non-payment risk of bank clients. This credit risk analysis was implemented using Python and libraries such as Pandas, scikit-learn and Seaborn.

BalletVR

2019

This system is a virtual reality application for guiding ballet dancers through learning and practicing basic ballet arm positions. By using a Microsoft Kinect for tracking the dancer's performed poses, the system compares them with basic arm positions, proposed by École Française, and allows the dancer to practice autonomously.

WRITEME

2019

This system consists of a web interface where developers can obtain recommendations of sections, based on research and the most popular open-source repositories, for the READMEs they are writing.

SongVerse

2019

This project is a Digital Music Instrument (DMI) that allows the user to create music in a virtual reality scenario where, by using wand controllers, the user interacts with an environment that resembles the outer space.

Onboarding Visualization

2018

This tool was built with the purpose of helping open-source maintainers to measure the effectiveness of their onboarding process, and give helpful tips on how to improve it.

Musical Invaders

2018

Based on the original 1978 arcade shooting game called Space Invaders, it is a web game where the player controls a spaceship, whose objective is to prevent aliens to reach earth by shooting musical notes. Not only fun, but Musical Invaders also encourages players to be creative by improvising new melodies while playing.

BatVis

2017

This project is a web application for visualizing bats tracking data obtained from thermal images in caves. This application is able to provide insights, such as changes in bats populations and flight behavior, in a more intuitive fashion, which can be used to the biomonitoring of population tendencies, habitat use and the effects of climate change.

ARkanoidAR

2017

This project is an augmented reality system that guides physiotherapy patients through the rehabilitation process of biomechanical movements at the sagittal plane. The system uses Microsoft Kinect for tracking the user's poses and instructs the user which movements must be performed by providing a series of visual and auditory feedback.

PUBLICATIONS

Improving Non-Stationary Acoustic Source Classification with Metric Learning

Oct 2023

Paper at 2023 XLI Simpósio Brasileiro de Telecomunicações e Processamento de Sinais (SBrT)

Non-Stationarity Objective Assessment for Acoustic Source Classification

Oct 2023

Paper at 2023 XLI Simpósio Brasileiro de Telecomunicações e Processamento de Sinais (SBrT)

A Metric Learning Based Solution for Non-Stationary Acoustic Source Classification

Sep 2022

Paper at 2022 XL Simpósio Brasileiro de Telecomunicações e Processamento de Sinais (SBrT)

HuTrain: a Framework for Fast Creation of Real Human Pose Datasets

Jul 2020

Poster at 2020 21st International Symposium on Mixed and Augmented Reality (ISMAR)

Songverse: a music-loop authoring tool based on Virtual Reality

Jul 2020

Extended Paper at 2020 11st Journal on Interactive Systems (JIS)

Usability and effects of text, image and audio feedback on exercise correction during augmented reality based motor rehabilitation

Sep 2019

Elsevier Computer & Graphics (C&G) Special Issue at 2019 21th Symposium on Virtual and Augmented Reality (SVR)

BalletVR: a Virtual Reality System for Ballet Arm Positions Training

Aug 2019

Full paper at 2019 21th Symposium on Virtual and Augmented Reality (SVR)

Songverse: a music-loop authoring tool based on Virtual Reality

Aug 2019

Full paper at 2019 21th Symposium on Virtual and Augmented Reality (SVR)

Human Pose Tracking from RGB Inputs

Aug 2018

Full paper at 2018 20th Symposium on Virtual and Augmented Reality (SVR)

ARkanoidAR 2.0: Otimizações em uma solução de realidade aumentada com base em testes de usabilidade

Aug 2018

Poster at 2018 26th Congresso Brasileiro de Engenharia Biomédica (CBEB)

ARkanoidAR: an Augmented Reality System to Guide Biomechanical Movements at Sagittal Plane

Jun 2017

Full paper at 2017 19th Symposium on Virtual and Augmented Reality (SVR)

CERTIFICATES

Deploying Machine Learning Models in Production

2023

DeepLearning.AI, Coursera

Machine Learning Modeling Pipelines in Production

2023

DeepLearning.AI, Coursera

Probability & Statistics for Machine Learning & Data Science

2023

DeepLearning.AI, Coursera

Introduction to Embedded Machine Learning

2023

Edge Impulse, Coursera

Machine Learning Data Lifecycle in Production

2023

DeepLearning.AI, Coursera

Types of Conflict <i>UCI, Coursera</i>	2023
Mathematics for Machine Learning: Linear Algebra <i>Imperial College London, Coursera</i>	2023
Conflict Resolution Skills <i>UCI, Coursera</i>	2023
Communication in the 21st Century Workplace <i>UCI, Coursera</i>	2022
Effective Problem-Solving and Decision-Making <i>UCI, Coursera</i>	2022
Work Smarter, Not Harder: Time Management for Personal & Professional Productivity <i>UCI, Coursera</i>	2022
Digital Signal Processing 1: Basic Concepts and Algorithms <i>EPFL, Coursera</i>	2022
Device-based Models with TensorFlow Lite <i>DeepLearning.AI, Coursera</i>	2022
Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization <i>DeepLearning.AI, Coursera</i>	2021
Introduction to Machine Learning in Production <i>DeepLearning.AI, Coursera</i>	2021
Sequence Models <i>DeepLearning.AI, Coursera</i>	2020

LEADERSHIP AND AWARDS

Reviewer at Symposium on Virtual and Augmented Reality 2020 (SVR) <i>Brazil</i>	Aug 2020
Publication at Congresso Brasileiro de Engenharia Biomédica 2018 (CBEB) <i>Hotel Atlântico Búzios, Búzios, Brazil</i>	Oct 2018
Participation and Presentation at Symposium on Virtual and Augmented Reality 2017 (SVR) <i>PUCPR, Curitiba, Brazil</i>	Nov 2017

**Volunteer at Olimpíada Brasileira de Robótica
2017 (OBR)**

Arena Pernambuco, São Lourenço da Mata, Brazil

Aug 2017

Teacher Assistant of Programming Language Paradigms
*Informatics Center (CIn), Federal University of Pernambuco
(UFPE)*

Aug 2016 - Mar 2017

**Participation at International Free Software Forum
2017 (FISL)**

PUCRS Center of Events, Porto Alegre, Brazil

Jul 2016

Teacher Assistant of Algorithms and Data Structures
*Informatics Center (CIn), Federal University of Pernambuco
(UFPE)*

Mar 2015 - Mar 2016

Awarded B in First Certificate in English (FCE)
University of Cambridge, United Kingdom

Jan 2013