Ricardo Rossiter Barioni

PERSONAL DETAILS

Birth	April 22, 1996
Phone	+55 81 98558-2677
Location	Recife, Brazil
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EXPERIENCE

Machine Learning Engineer @ SiDi
Jan 2021 - Current
- Audio and Speech Processing
- Natural Language Processing
- Acoustic Source Classification

Academic Researcher @ Voxar Labs
Aug 2016 - Aug 2020
- Human Pose Estimation
- Face Recognition
- 3D Object Reconstruction
- Bat Tracking Visualization
- Augmented Reality for Physiotherapy

SKILLS

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

EDUCATION

M.Sc. in Computer Science
Aug 2018 - Jul 2020
Informatics Center (CIn), Federal University of Pernambuco (UFPE)

B.Sc. in Computer Science
Apr 2014 - Jul 2018
Informatics Center (CIn), Federal University of Pernambuco (UFPE)

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
DeepLearning.AI, Coursera

2023

Machine Learning Modeling Pipelines in Production
DeepLearning.AI, Coursera

2023

Probability & Statistics for Machine Learning & Data Science
DeepLearning.AI, Coursera

2023

Introduction to Embedded Machine Learning
Edge Impulse, Coursera

2023

Machine Learning Data Lifecycle in Production
DeepLearning.AI, Coursera

2023

Types of Conflict
UCI, Coursera

2023

Mathematics for Machine Learning: Linear Algebra
Imperial College London, Coursera

2023

Conflict Resolution Skills
UCI, Coursera

2023

Communication in the 21st Century Workplace   2022
UCI, Coursera

Effective Problem-Solving and Decision-Making   2022
UCI, Coursera

**Work Smarter, Not Harder: Time Management for
Personal & Professional Productivity**   2022
UCI, Coursera

**Digital Signal Processing 1: Basic Concepts and
Algorithms**   2022
EPFL, Coursera

Device-based Models with TensorFlow Lite   2022
DeepLearning.AI, Coursera

**Improving Deep Neural Networks: Hyperparameter
Tuning, Regularization and Optimization**   2021
DeepLearning.AI, Coursera

Introduction to Machine Learning in Production   2021
DeepLearning.AI, Coursera

Sequence Models   2020
DeepLearning.AI, Coursera

LEADERSHIP AND AWARDS

**Reviewer at Symposium on Virtual and Augmented
Reality 2020 (SVR)**   Aug 2020
Brazil

**Publication at Congresso Brasileiro de Engenharia
Biomédica 2018 (CBEB)**   Oct 2018
Hotel Atlântico Búzios, Búzios, Brazil

**Participation and Presentation at Symposium on
Virtual and Augmented Reality 2017 (SVR)**   Nov 2017
PUCPR, Curitiba, Brazil

**Volunteer at Olimpíada Brasileira de Robótica
2017 (OBR)**   Aug 2017
Arena Pernambuco, São Lourenço da Mata, Brazil

Teacher Assistant of Programming Language Paradigms   Aug 2016 - Mar 2017
*Informatics Center (CIn), Federal University of Pernambuco
(UFPE)*

Participation at International Free Software Forum 2017 (FISL)   Jul 2016
PUCRS Center of Events, Porto Alegre, Brazil

Teacher Assistant of Algorithms and Data Structures   Mar 2015 - Mar 2016
Informatics Center (CIn), Federal University of Pernambuco (UFPE)

Awarded B in First Certificate in English (FCE)   Jan 2013
University of Cambridge, United Kingdom