Ricardo Rossiter Barioni

PERSONAL DETAILS

Birth	April 22, 1996
Phone	+55 81 98558-2677
Location	Recife, Brazil
Mail	rrbarioni@gmail.com
Site	rrbarioni.github.io
Linkedin	linkedin.com/in/rrbarioni
Github	github.com/rrbarioni

SUMMARY

Skilled Machine Learning Engineer with expertise in deep learning, computer vision, audio/speech processing, NLP, 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

Senior Computer Vision Engineer @ FCx Labs Jan 2025 - Current

- Focused on computer vision and image processing-based solutions.
- Involved in the development and enhancement of e-commerce product catalogs to improve customer experience through high-quality visual content.

Applied Machine Learning Scientist @ SiDi Jan 2021 - Jan 2025

- 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 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)

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, Computer Vision, Audio and Speech Processing, Natural Language Processing

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 2023
UCI, Coursera

Mathematics for Machine Learning: Linear Algebra 2023
Imperial College London, Coursera

Conflict Resolution Skills 2023
UCI, Coursera

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