Henrique H. Vedoveli

Machine Learning Engineer

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I'm a Machine Learning Engineer and doing Master's in Computer Science at UFPR, specializing in medical imaging's computer vision techniques. Proficient in **Python**, **C++,** and adept with **MongoDB**, **Git**, and **Docker**, I excel in crafting efficient, collaborative solutions. At PACER, I've led projects in object detection, pose estimation, and face recognition, elevating passenger experiences. My contributions at UEM encompass a high-performing Convolutional Neural Network for medical image analysis. I communicate insights through Medium articles on machine learning, computer vision, and technology trends. Driven by advancing healthcare through technology, I bring a proven track record, a dedication to learning, and an ambition for impactful contributions.

Work Experience

PACER Set 2022 – Present
Machine Learning Engineer Jr. *Curitiba - Brazil*

- Developed and deployed cutting-edge computer vision solutions, including object detection, object tracking, pose estimation, and face recognition, to optimize the boarding process and enhance the overall travel experience for millions of passengers;
- Spearheaded a project to predict top view pose, using a YOLO model;
- Spearheaded the implementation of advanced face image validations, encompassing pose analysis, distance measurement, anti-spoofing, and occlusion detection, contributing to enhanced security and accuracy;
- Actively engaged in code refactoring to improve code quality, maintainability, and performance, leading to more efficient and robust solutions.

State University of Maringá (UEM) Jan 2020 – Jan 2022
Teaching Assistant *DFI - Maringá - Brazil*

- Modern Physics.
- Eletromagnestism.

Education

Federal University of Paraná (UFPR) July 2022 – December 2024 (Expected)
Master's in Computer Science *PPGInf - Curitiba - Brazil*

- **Thesis**: Explainable Algorithm to Detect Psoriatic Arthritis in Thermal Imaging
- **Advisor**: Profa. Dra. Olga Regina Pereira Bellon

State University of Maringá (UEM) Jan 2018 – Jun 2022
Bachelor's in Physics *DFI - Maringá - Brazil*

- **Thesis**: Classification of Pneumonia on Chest X-ray Using Convolutional Neural Networks
- **Advisor**: Prof. Dr. Anuar José Mincache

Skills

Languages Python, C++
Frameworks/Databases Pytorch, Tensorflow, OpenCV, NumPy, Scikit-Learn, MediaPipe, dlib
Databases MongoDB, MySQL
Developer Tools Git, Docker, LaTeX, Azure, AWS

Communication

Portuguese *Native* **English** *Advenced* **Italian** *Beginner*

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Projects

Face Swapper

See More

- The Face Swapper is a cutting-edge Python-based application that allows users to effortlessly swap faces in images and videos. Leveraging the power of OpenCV and Mediapipe frameworks, this tool provides accurate and real-time face detection, making it easy to identify and manipulate faces within media files. To enhance performance, the face detection algorithm is implemented in C++, ensuring rapid and efficient processing.

  Languages Python & C++
  Frameworks OpenCV, NumPy, MediaPipe
  Developer Tools Git, Docker

Face Validations

See More

- The Face Validation System is a powerful and versatile project developed in Python, leveraging several frameworks and developer tools to validate the quality of facial data. The primary goal of this system is to ensure that the captured facial images meet specific criteria for angle, depth, blur and occlusion, making it suitable for various computer vision applications.

  Languages Python & C++
  Frameworks Pytorch, OpenCV, NumPy, MediaPipe
  Developer Tools Git, Docker

AR-PONG

See More

- The AR-PONG project is an Augmented Reality game developed in Python, featuring a game of PONG. The game involves bouncing a ball off the paddle to score points, with the ball's trajectory and score being updated in real-time based on the player's hand position. The project showcases the fusion of computer vision and game development, creating an engaging and interactive gaming experience enhanced by augmented reality elements.

  Languages Python
  Frameworks OpenCV, NumPy, MediaPipe
  Developer Tools Git, Docker

Gesture Tracker

See More

- Gesture Tracker is a Python project that uses computer vision techniques to track and recognize hand gestures in real-time webcam feed. It leverages the power of the MediaPipe library for hand tracking and utilizes OpenCV for visualization and interaction. This project provides an interactive experience for detecting raised fingers and recognizing different hand positions, making it suitable for applications like gesture-controlled interfaces and interactive experiences.

  Languages Python
  Frameworks OpenCV, NumPy, MediaPipe
  Developer Tools Git, Docker