Vitor Negromonte Cabral de Oliveira

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github.com/vitornegromonte

Education

Federal University of Pernambuco (UFPE) **Recife, Brazil**
B.Sc. in Statistics 2022 - 2026
Languages: Native Portuguese, Advanced English, and Basic Spanish.

Work Experience

Confidential Client — Multinational Company Jan 2025 – Present
Machine Learning Engineer (Freelancer) Remote

Designed and implemented a complete computer vision pipeline for edge deployment, including dataset creation, image pre-processing, model training, and inference. Managed cluster setup and optimization for efficient large-scale training. Work conducted under NDA, with a focus on scalable, resource-efficient solutions for AI on edge devices.
Tech stack: Python (PyTorch, OpenCV, FastAPI), Docker, Linux, Shell scripting, Git and more.

Redduo.ai Nov 2023 – Jul 2024
Co-founder and Data Scientist Recife. BR

Worked as a Data Scientist, conducting data analysis to support business intelligence initiatives and developing software automations. Additionally served as an AI Scientist, contributing to the development of natural language processing pipeline with a focus on optimization and model performance enhancement.

Research Experience

Generative AI Research Group (GERAIA) Nov 2023 – Present
Researcher Recife. BR

Supervisors: Prof. Filipe Calegario
Conducting research in Generative AI, focusing on evaluating Language Models in Portuguese for performance, scalability, and adaptability in emergent languages. Investigating energy-efficient AI for sustainable training and inference, optimizing generative models for deployment on low-resource devices.

National Institute of Science and Technology in Software Engineering (INES) Aug 2023 – May 2024
Undergraduate researcher Recife. BR

Supervisors: Prof. Kiev Gama, Dr. Danilo Ribeiro (Cesar School) and Prof. Ana Paula Chaves (Northern Arizona University)
Brazilian Ministry of Science and Technology - National Institute of Software Engineering.
Assisted in developing quantitative tools for analysis and enhancing accessibility techniques for apps designed to support adults on the autism spectrum.

Extracurricular

Ligia - UFPE's Artificial Intelligence Club Mar 2024 – Present
Co-founder and Outreach Director Recife, BR

Ligia is an AI club/extracurricular project at the Federal University of Pernambuco, affiliated with the pioneering CIn.AI research group. As Outreach Director, I focus on building partnerships, organizing AI-focused events, and developing educational materials to promote AI across various fields.

Publications

A Mapping Review to Understand Web and Mobile Apps Accessibility for Adults with Autism May 2025
Danilo Monteiro Ribeiro, Felipe de Vasconcelos Melo, **Vitor Cabral de Oliveira**, Celeste Pereira, Ana Paula Chaves Steinmacher, Kiev Gama.
Accepted to Brazilian Symposium on Information Systems - 2025

A Comparative Study on Accessibility for Autistic Individuals with Urban Mobility Apps Aug 2024

Danilo Monteiro Ribeiro, Felipe Vasconcelos Melo, **Vitor Negromonte**, Gabriel Walisson Matias, Adna Farias, Celeste Azul, Ana Paula Chaves, Kiev Gama.

Accepted to Brazilian Symposium on Human Factors in Computing Systems - 2024

Teaching

Federal University of Pernambuco

IF867 - *Introduction to Deep Learning* 2024 – Present

Taught fundamental Deep Learning concepts, covering Recurrent Neural Networks (RNNs), Convolutional Neural Networks (CNNs), and Transformer architectures.

IF867 - *Computational Creativity* 2024 – 2025

Assisted in a Computational Creativity course that investigated the use of Generative AI (Diffusion Models, LLMs) in creative applications.

Projects

F1Predict: Formula 1 Race Prediction System
github.com/vitornegromonte/F1Predict

- Designed and built a complete system for predicting F1 race outcomes, encompassing data collection, feature engineering, model training, deployment, and a user interface. Developed a REST API using FastAPI and PostgreSQL for data management and model serving, and a React/TypeScript front-end for user interaction. Model had an error of 1 second, considering the real race time predicted.
- Tools: Python (PyTorch, scikit-learn), FastAPI, PostgreSQL, React, TypeScript.

Tupy: Lightweight Energy Optimizer for AI training
github.com/vitornegromonte/tupy

- Tupy is a lightweight package designed to optimize energy consumption for PyTorch-based AI models during training and reduce energy bloat during training phase.
- Tools: Python, PyTorch, CUDA, NumPy, Nvidia NVML

MARS: Multi Agent Recommendation System
github.com/vitornegromonte/mars

- FastAPI-based API designed to automate the collection of research papers from ArXiv, use LLM-based agents to review and filter the papers, and then send selected results directly to your email.
- Tools: Python, FastAPI, CrewAI, HuggingFace

Parkinson Diagnosis using Computer Vision - *Campus Party Keynote*
github.com/vitornegromonte/CPNE2024

- Developed a CNN-based approach for detecting Parkinson's disease at various stages using images of spirals drawn on paper. Our model **outperformed state-of-the-art** methods on the same dataset (*Distinguishing Different Stages of Parkinson's Disease Using Composite Index of Speed and Pen-Pressure of Sketching a Spiral*) by approximately 10%, achieving an impressive **95% accuracy**.
- Tools Used: Python, PyTorch, Optuna, Zeus

Computer Vision in Breast Cancer Diagnosis - A Comparative Study with CBIS-DDSM Data
github.com/vitornegromonte/breast_cancer-classification

- Comparative analysis of CNN models with the aim of enhancing early detection capabilities for breast cancer through the utilization of mammography images.
- Tools Used: Python, TensorFlow, OpenCV

FashionMNIST Comparative Analysis
github.com/vitornegromonte/FashionMNIST-ComparativeAnalysis

- Fashion MNIST comparative analysis using machine learning models: Multi-Layer Perceptron, CNNs (VGG, ResNet, GoogLeNet, DenseNet), a CNN model (from scratch) and base models (Random Forest, SVM, Decision Tree, KNN, AdaBoost, Naive Bayes, Logistic Regression).
- Tools Used: Python, TensorFlow, PyTorch, Scikit-learn, Keras

Tools and Interests

Programming Languages: Python, R, SQL, LaTeX

Technologies: PyTorch, TensorFlow, Keras, Lightning, OpenCV, FastAPI, Scikit-learn, PostgreSQL, CrewAI, PowerBI, AWS (Lambda, Cognito).

Interests: Healthcare, Sustainability, Optimization, Bio-inspired computing, Computer Vision, Natural Language Processing, Energy-based models, Complex Systems, Neuromorphic computing.