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
GPA: 6.1/10
Languages: Native Portuguese, Advanced English, and Basic Spanish.

Experience

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

Conducting research in Generative AI, focusing on evaluating Language Models in Portuguese and leveraging usability of those critical systems.

LIGIA - UFPE's Artificial Intelligence Club Nov 2024 – Present
Co-founder and Outreach director Recife, BR

LIGIA is an AI club 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.

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 core AI models with a focus on optimization and performance enhancement.

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

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.

Publications

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
10.48550/arXiv.2410.14033

Teaching

Federal University of Pernambuco

IF867 - *Introduction to Deep Learning* 2024 – Present
IF867 - *Computational Creativity* 2023 – Present

Projects

Tupy: Lightweight Energy Optimizer for AI training (*in construction*)
github.com/vitornegromonte/tupy

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

MARS: Multi Agent Recommendation System (*in construction*)
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 Used: Python, FastAPI, CrewAI

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 by approximately 10%, achieving an impressive **95% accuracy**.
- Tools Used: Python, PyTorch, Optuna, Zeus

Convolutional Neural Networks 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, Mojo, C/C++, LaTeX

Technologies: PyTorch, TensorFlow, Keras, Pytorch Lightning, OpenCV, FastAPI, Scikit-learn, PostgreSQL, PowerBI, AWS

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