Vitor Negromonte Cabral de Oliveira

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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 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 (Nvidia Jetson Nano and Raspberry Pi), and exploring emergent capabilities in language models for critical applications. Working with researchers from the King's College London, Harvard University and L'École de Design Nantes Atlantique.

Ligia - UFPE's Artificial Intelligence Club Nov 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.

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 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
Teaching core topics in Deep Learning, including Recurrent Neural Networks (RNNs), Convolutional Neural Networks (CNNs), and Transformer Architectures (e.g., BERT, GPT, LLaMA).

IF867 - *Computational Creativity* 2023 – Present
Exploring the use of Generative AI tools for creative applications, covering topics such as Diffusion Models and Large Language Models (LLMs).

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 and reduce energy bloat during training phase.
- Tools: 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: 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 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, Pytorch Lightning, OpenCV, FastAPI, Scikit-learn, PostgreSQL, CrewAI, PowerBI, AWS

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