MACEIO, BRAZIL
yrribeiro.github.io
ynk9a@outlook.com

MACHINE LEARNING AND COMPUTER VISION ENGINEER

Yanka Ribeiro

TECH STACK

python, c++, pandas, numpy, scikit-learn, pytorch, opencv, seaborn, matplotlib, pyspark, google cloud (big query, vertex ai), mysql, git, docker, flask.

RESEARCH EXPERIENCE

Google Explore CSR LATAM Program, Remote, Advisor Phd. Enzo Ferrante (CONICET Argentina) — *Leveraging Vision Language Models as metadata generators for medical imaging datasets*

february, 2024 - july, 2024 **(in progress)**

- leverage the open-vocabulary capacity of current Vision Language Models (VLMs) and evaluate their potential to describe and annotate artifacts and other types of contextual metadata in X-ray medical imaging datasets, to enable future analysis of biases in computer aided diagnosis, which take into account artifacts as potential reasons.

computer vision, visual language models, natural language processing, python, pytorch, pre-trained specialized multimodal models for healthcare

Bachelor's Thesis, Hybrid (UFAL), Advisor Phd. Fabiane Queiroz (UFAL Maceió) — *Evaluation of Deep Metric Learning Methods for the Diagnosis of Human Visceral Leishmaniasis*

september, 2023 - december, 2023 (three months)

- build and evaluate the impact and effectiveness of deep metric learning methods in accurately diagnosing human visceral leishmaniasis using microscopic images by: accentuating areas of relevance within the images and segmenting these images into smaller patches, comparing 4 pre-selected deep metric learning algorithms to pinpoint the most effective models for extracting features and configuring a supervised classification algorithm to categorize images based on the data extracted from the metric learning models.

computer vision, image processing, image classification, python, pytorch, cnn, svm, pca, deep metric learning

São Paulo Research Foundation (FAPESP), Remote (UNIFESP), Advisor Phd. Rubens Belfort Jr. — *Uso de algoritmos de Deep Learning para rastreio de Toxoplasmose ocular em imagens de retina*

january, 2023 - march, 2023 (three months)

- develop and validate a computer vision algorithm for tracking ocular toxoplasmosis in the Brazilian population using the BR-OPHTSET database, a collection of colored retina photos featuring Brazilian patients and patients from the Uveitis Outpatient Clinic at the Federal University of São Paulo (UNIFESP).
- the most commonly used neural networks in computer vision, such as ResNet, VGG, DenseNet, and EfficientNet, were applied and compared with different optimizers.

computer vision, image segmentation, python, pytorch, cnn, residual nets

UFAL Office for Research and Postgraduate Studies (PROPEP), Remote (UFAL/BrAIN), Advisor Phd. Aydano Machado — *O uso da Inteligência Artificial para qualificar o resultado do cálculo do Poder da Lente Intraocular em portadores de catarata*

september, 2021 - august, 2022 (twelve months)

- creation of decision support systems based on computational models that qualify the result of classical formula for calculating the power of the intraocular lens (SRK/T) implanted in phacoemulsification surgery in patients with senile cataracts, using information obtained from the IOL Master 500® optical biometer and the results of classical formulas for calculating the degree of the intraocular lens.
- constructed and evaluated predictive models based on decision trees and Bayesian networks for the mentioned formula.
- developed a mechanism to detail the inference performed by each model after prediction, making it understandable for the surgeon.

supervised algorithms, random forests, bayesian nets, tabular data wrangling, python

WORK EXPERIENCE

Scientific Computing and Numerical Analysis Laboratory, Hybrid (Maceio) — *AI Engineer*

january, 2024 - current

- r&d project in cooperation with Alagoas State University of Health Sciences (UNCISAL) and the Hearing and Technology Laboratory (LATEC)
- responsible for developing an AI engine capable of recording and evaluating auditory brainstem response in the time and frequency domains, to facilitate the early diagnosis of auditory alterations.

IBM, Remote (Sao Paulo HQ) — *Data Scientist Intern*

april, 2022 - december, 2022 (eight months)

- built an evaluation engine to optimize cost data labeling for bank employees, enhancing insights into the bank's expenses and team portfolio.
- achieved 90% precision, on average, with a variety of supervised and unsupervised ML models to determine the most common budget category associated with each expense pattern.

Edge AI Laboratory, Maceio — *Machine Learning Engineer, NLP Team*

january, 2021 - february, 2022 (one year)

- designed and implemented a rule-based NLP engine for automatic extraction of key specifications from lengthy tender documents, later used in a recommendation system for a company to optimize their bid process in public tenders.
- responsible for fine-tuning BERTimbau (PT-BR) for matching and extracting more complex and dynamic features related to CT equipment technical specifications.
- successfully reduced the chances of bid losses due to inaccurate equipment recommendations by 65%, leading to improved win rates in competitive tenders.

EDUCATION

Federal University of Alagoas (UFAL), Maceio — *BSc. Computer Science*

september, 2019 - december, 2023

- teaching assistant, twice, for the Computer Science department.
- first place in the UFAL CS Department programming marathon (2019).
- member of The Student Academic Office of Computer Science and Engineering (DIACOM).
- volunteer in outreach programs: AcHA (cybersecurity), IEEE (research and robotics) and GEMA (competitive programming).
- selected for two undergraduate research projects, with federal institutes grants, in the field of biomedical computing, focusing on ml/dl applications in ophthalmology.
- scholarship holder at the Office of International Affairs, responsible for website management and event organizer.
- bachelor's thesis in the field of computer vision applied to parasitology and the detection of neglected disease, obtained the maximum score (10).
- 8.5 / 10 gpa.