

# Mateus FERREIRA

Software Engineer | Data Science | Computer Vision | Machine Learning | High Performance Computing

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Curitiba, PR - Brazil

I am an undergraduate student in Biomedical Informatics, which is a computer science-based program with an emphasis on the application of technology and computational methods to develop solutions in health and biology areas.

I would describe myself as a passionate developer interested in technology applications to generate social and environmental impacts. Thereby, my areas of interest include computer vision technology applications – to manage smart cities, agriculture, and robotics – and the data science field applied to the decision-making processes by companies and governments.

## FORMATION

2017 - Now   **Bachelor in Biomedical Informatics**, at Universidade Federal do Paraná (UFPR), in Informatics Department.

## EXPERIENCE

August 2022   **Development Analyst, TELESUL,**

May 2022   Development of a PABX portal for users to make changes to their own phones.

Python   Django   HTML   CSS   JavaScript

March 2022   **Data Scientist, PARANÁ STATE HEALTH DEPARTMENT,**

November 2020   Development of an automated system for capturing, analyzing, and processing data to build a COVID-19 Epidemiological Report that the Paraná State Health Department daily publishes **here**, and that system has reduced from 6 hours to 20 minutes the publication Report time.

The main developed activities were :

- > migration from a Microsoft Excel and Access-based workflow to an automated Python-based system ;
- > crossing several different Health Databases, some with more than 40 million records, data normalization, and standardization to generate relevant information in the COVID-19 context for the entire state. To achieve this, I used Python and the most common libraries for data manipulation ;
- > distribution strategies definition of more than 10 million COVID-19 tests to the entire State of Paraná, based on data of new cases and tests positivity index per city ;
- > I have participated in a study that linked positive laboratory samples for the virus and patients who had either received or not the vaccine for COVID-19.

Python   NumPy   R   Jupyter Notebook   Microsoft Power BI   SQL   Pandas   SQLAlchemy   Data Visualization  
Data Analysis

November 2020   **Research Intern, LIGH - LABORATORY OF IMMUNOGENETICS AND HISTOCOMPATIBILITY,**

August 2019   Development of a system to analyze and characterize genetic sequences from bone marrow donors from the entire State of Paraná. The comparison between all the sequences in the sample set is performed in a few seconds.

C   Python   R   Matplotlib   Seaborn

## SKILLS

**Programming**   Python , Java (JEE) , C/C++ , R, JavaScript , HTML5 , CSS, Go , Angular, SQL, Shell/Batch Script, Assembly.

**Frameworks and Libraries**   OpenCV, OpenMP, OpenMPI, Pandas, Plotly, scikit-learn, Keras, TensorFlow, Django, Flask, Node.js, Spring, Hibernate.

**Databases**   MySQL, PostgreSQL, NoSQL, MongoDB.

**Development Tools**   Visual Studio Code, Git, Heroku, Docker, Metabase, Microsoft Power BI, Apache Spark.

**Operating Systems and Services**   Windows, Linux, AWS.

**Office Automation**    $\LaTeX$ , Office Pack(Word, Excel, PowerPoint).

## LANGUAGES

Portuguese ● ● ● ● ●  
English ● ● ● ● ○  
Spanish ● ● ○ ○ ○

## + SOFT SKILLS

- > Communication;
- > Collaboration;
- > Creativity;
- > Empathy.

## PROJECTS

### CARIES CLASSIFICATION, VRI - VISION, ROBOTICS AND IMAGING

2022 - NOW

I am currently working on a final undergraduate project about caries level classification in dental images.

### CODE OPTIMIZATION, HIPES - HIGH PERFORMANCE AND EFFICIENT SYSTEMS

2020 - 2021

 [github.com/mateus-fecassio/HiPES](https://github.com/mateus-fecassio/HiPES)  [Article for ERAD 2021](#)

C code vectorization techniques, predication, and non-temporal loads in real applications Performance Study. The goal was to measure the impact of these code optimization techniques on real application models and write an article about obtained results.

C Matplotlib Optimization Vectorization Performance Testing Article Writing Modeling

## PUBLICATIONS

### ANÁLISE DE DESEMPENHO DAS TÉCNICAS DE VETORIZAÇÃO, PREDICAÇÃO E LOADS NÃO TEMPORAIS EM PROCESSADORES SKYLAKE 2021

 [Article for ERAD 2021](#)

This paper evaluates three code optimization techniques' time performances. Although the instruction vectorization and predication techniques show a reduction in this time in each proposed benchmark, the non-temporal load technique, as not expected, had a lower performance when compared to the proposed base model.

Optimization Vectorization Performance Testing Modeling