Rodrigo Aragao

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EDUCATION

Drexel University | Philadelphia, PA *September 2021 – Present*
Bachelor of Science in Computer Engineering / Minor in Neuroscience *Graduation: June 2025*

SKILLS

Programming: Python (Matplotlib, Pandas, Pytorch, Tensorflow, HuggingFace, Pyspark, Tkinter), MATLAB, C, C++, SQL, VHDL
Machine Learning & NLP: Transformer-based models (BERT, RoBERTa), SVM, Sentiment Analysis, Feature Engineering
Software: Microsoft Office, Power BI, SQL Management Studio, Spyder IDE, VS Code, Azure Databricks, Azure Synapse
Languages: English, Portuguese (Native), French (Intermediate)

EXPERIENCE

GS1 US **Ewing, NJ**
Data Analytics Engineer Co-Op *April 2024 – September 2024*
• Developed PySpark notebooks and SQL views for barcode prefix analysis used across global commerce for business reporting.
• Built Power BI dashboards and conducted SQL-based QA testing on large datasets to ensure data integrity and reporting accuracy.
• Implemented data curation scripts and enhanced existing solutions to provide accessible information to product owners.
• Designed and documented data pipelines, flows, and ELT processes to streamline product data accessibility for analytics teams.

Drexel University, Cognitive Neuroengineering and Wellbeing Laboratory **Philadelphia, PA**
Undergraduate Researcher *September 2023 – September 2024*
• Extracted and engineered features from EEG recordings using MATLAB (EEGLAB), transforming raw brainwave data into structured epoch-level power metrics for downstream analysis.
• Developed and evaluated Support Vector Machine (SVM) model to classify fast vs. slow reaction times, incorporating k-fold cross-validation, performance metrics, and decision boundary visualizations.
• Automated the full ML pipeline, from signal processing to model training and interpretation, supporting research on the role of theta and alpha frequency waves in cognitive attention in closed-loop neurocognitive tasks.

Fulton Bank, *IT Chief Data Office* **Lancaster, PA**
Data Science & Visualization Co-Op *April 2023 – September 2023*
• Created Python scripts to perform data quality profiling (completeness, uniqueness, and consistency) in Lending & Risk datasets.
• Built and enhanced Power BI reports, including Delinquency and Risk Rating dashboards for key business insights.
• Contributed to data governance by documenting and automating validation checks on historical datasets.

Drexel University College of Medicine, Neural Circuits Engineering Laboratory **Philadelphia, PA**
Undergraduate Researcher *July 2022 – September 2022*
• Assisted in optimizing computational models of ion channels in *Drosophila* neurons using Python and Machine Learning.
• Participated in neuroscience journal discussions with interdisciplinary lab members.

PROJECTS

Optogenetics Device for Engineering Neural Circuits – Senior Design Project *September 2024 – June 2025*
• Engineered a modular, Arduino-based LED control system with 96-well stimulation, enabling configurable intensity, color, pulsing, and timing for high-throughput optogenetics experiments in *Drosophila* neural circuits.
• Developed a dynamic Python GUI for real-time protocol control and experiment execution via serial communication, enhancing accessibility for neurobiology research.
• Integrated temperature monitoring with automated fan control and CSV-based metadata logging for experiment reproducibility.
• Enabled saving/loading of LED protocols and well assignments using structured JSON, supporting repeatable and scalable testing.

Succession TV Series Natural Language Processing (NLP) model – Machine Learning Project *August 2024 – Present*
• Developed a sarcasm detection model using fine-tuned BERT to classify character's dialogues; conducted full ML pipeline.
• Performed comprehensive exploratory data analysis, including lexical diversity analysis, topic modeling, sentiment analysis, and word cloud visualizations, to gain insights into character speech patterns.
• Fine-tuned a pre-trained BERT model to generate text a specific character's speaking style including use of sarcasm, applying GenAI techniques to transform sentences into character-specific phrasing.

IMDB Movie Review Sentiment Classifier – Machine Learning Project *June 2024 – July 2024*
• Evaluated multiple models (Logistic Regression, SVM, Random Forest, and BERT) on IMDB reviews to classify movie reviews as positive or negative with optimized accuracy.
• Preprocessed text with tokenization, TF-IDF and transformer embeddings; applied cross-validation and grid search.
• Selected the best model based on F1-score and confusion matrix analysis, achieving over 90% accuracy on unseen data.