

SKILLS

- **Technical Skills:** Deep Learning, Machine Learning, Data Science
- **Programming Languages:** Python, SQL, Java, C++
- **Programming Frameworks:** Pytorch, Tensorflow, Keras, HuggingFace, Pandas, OpenCV, Matplotlib
- **Technologies:** Git, Docker, GCP/AWS/Azure Compute and Storage (Databricks(Spark Jobs), model training and serverless app deployment with Docker)

EXPERIENCE/PROJECTS

- **Master Thesis: Deep Learning for SNP-Disease Correlation Analysis** Instituto Superior Técnico
Deep Learning Research September 2020 - October 2022
 - **Problem and Motivation:** Developed an innovative deep learning model to detect complex, nonlinear correlations between Single Nucleotide Polymorphisms (SNPs) and diseases. A short but more thorough description is available at [Master Thesis](#).
 - **Deep Learning Expertise:** Gained in depth intuitive understanding of state-of-the-art deep learning architectures (Transformers, MLPs, CNNs, RNNs) through extensive literature review. Analyzed their applicability to various data types, particularly high-dimensional genetic data.
 - **Custom and Creative Model Development:** Designed and implemented a deep learning model with custom layers optimized for genetic data analysis enhancing model interpretability and performance combined with embedding layers for feature encoding to retain model complexity.
 - **Innovative Methodology for Model Evaluation in problematic datasets:** Adapted the model evaluation approach using multi-initialization strategy to ensure consistent feature selection in datasets with very subtle and nonlinear correlations.
 - **Significant Results:** Achieved 99% recall on 3rd order non-linear interaction datasets where the top performing state of the art methods achieved 0% recall given their inadequacy for pure non linear interactions. Successfully identified significant SNP combinations in datasets where SNP impact contributed only 1% to disease probability variation.
- **Quantitative Research and Algorithmic Trading** Lisbon
Software Engineering, Data Science, Deep Learning Nov 2022 - Present
 - **Strategy Backtester:** Designed and implemented a comprehensive Python-based algorithmic trading system, incorporating multi-timeframe data analysis and minute-precision trade execution. Developed a rigorous backtesting framework using years of historical price data.
 - **Optimization:** Developed strategy optimizations evaluated using statistical testing. Integrated deep learning models (CNNs, Vision and Regular Transformers) to optimize signal selection based on prediction confidence.
 - **Real-Time Trading Infrastructure with APIs:** Engineered a low-latency, automated execution system interfacing with multiple exchange APIs. Implemented robust error handling and continuous data feed processing for uninterrupted trading operations.
 - **Visualization Tools:** Developed and integrated visualization tools using Finplot and PyQt libraries for real-time and historical data analysis. These tools proved essential for strategy evaluation, adjustment, and execution debugging.
- **Deep Learning Projects** Lisbon
Deep Learning, Software Engineering
 - **Deep Learning end to end projects:** Implemented multiple deep learning models to different projects of which some selected ones are showcased at [Portfolio](#). Model deployment with Docker to different cloud providers such as GCP, AWS, Azure and HuggingFace.

EDUCATION

- **Instituto Superior Técnico** Lisboa, Portugal
Master of Science in Computer Science and Engineering 2018 - 2022
 - **Relevant Courses:** Data Science, Machine Learning, Reinforcement Learning, Artificial Intelligence in Games, Autonomous Agents and Multi-Agent Systems, Natural Language
- **ISCTE-IUL** Lisboa, Portugal
Bachelor of Engineering in Computer Science and Engineering 2015 - 2018