

## SKILLS

---

- **Technical Skills:** Deep Learning, Machine Learning, Data Science
- **Programming Languages:** Python, Java, C++
- **Programming Frameworks:** Pytorch, Tensorflow, Keras, HuggingFace, Pandas, OpenCV, Matplotlib
- **Techonologies:** Git, Docker, GCP/Azure/AWS with Docker App Deployment

## EXPERIENCE/PROJECTS

---

- **Master Thesis** Instituto Superior Técnico, Lisboa  
*Deep Learning Research* September 2020 - October 2022
  - **Problem:** The correlation between Single Nucleotide Polymorphisms (SNPs) and a disease may hinge on a strictly nonlinear combination of two or three SNPs, among the hundreds present in a dataset, which poses a challenge for traditional statistical methods since analyzing individual SNPs might yield zero correlation with the disease. The correlations can only be accurately assessed when SNPs are considered in combination and given the exponential increase in the number of combinations as the number of SNPs rises, the developed model provides a valuable alternative to exhaustive methods.
  - **Solution:** Implemented a deep learning classification model for extracting correlations between genetic information and diseases. Following the model training, the learned weights were employed to emphasize the most significant SNPs. The features identified as significant by the model underwent a subsequent filtration process using a chi-square test.
  - **Conclusion:** In datasets where the impact of SNPs contributed merely 1% to the variation in the probability of disease for the samples, the model exhibited its capability to accurately identify the pertinent combination of significant SNPs, despite the subtle nature of the correlation. The model was able to outperform the state of the art non exhaustive solutions/models.
- **Quantitative Research and Algorithmic Trading** Lisbon  
*Software Engineering, Data Science, Deep Learning* Nov 2022 - Present
  - **Strategy Backtester:** Designed and coded an algorithmic trading strategy alongside a comprehensive Python backtesting system with several years of price action data. The implementation incorporates intricate information interaction across multiple timeframes, with special attention to ensuring a rigorous execution of trades within minutes.
  - **Optimization:** Developed strategy optimizations evaluated using statistical testing. Also integrated deep learning optimization projects to extract potential information regarding selection of signals using CNNs, Vision and Regular Transformers.
  - **Live execution and APIs:** Implemented an automated execution system for the strategy in live markets in combination with the APIs of multiple exchanges. Incorporated continuous data feeds and error handling mechanisms to ensure uninterrupted and robust trading operations. The execution was further optimized to run with low latency.
  - **Visualization Tools:** Developed and integrated visualization tools for both continuous live data and historical results, facilitating ongoing strategy evaluation and adjustment using Finplot and PyQt libraries which proved itself essential to strategy execution debugging.
- **Deep Learning Project** Lisbon  
*Deep Learning, Software Engineering* Present
  - **Custom Labels Object detection:** Combined state of the art transformer vision models to automate an end to end project which is able to process video and do object detection with custom labels. Check [project link](#).

## EDUCATION

---

- **Instituto Superior Técnico** Lisboa, Portugal  
*Master of Science in Computer Science and Engineering* 2018 - 2022
  - **Relevant Courses:** Data Science, Machine Learning, PLIDM(Planning, Learning and Intelligent Decision Making), 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