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Portfolio overview

Programming Projects

- An app in **Java** for the management of travel orders of Paris-Dauphine University's professors-researchers - using a geolocation API (Agile methodology using GitHub, Travis CI & Maven)
- A time-sharing processor allocation simulator in **Java**
- The study of the N-Body problem in celestial mechanics in **Python**
- The study of the double pendulum and its chaotic motion in dynamical systems in **Python**
- A soccer team composition after designing and featuring MCDM algorithms in **Python** (18,5/20)
- A simulator of assembler language in **C**
- An airport manager in **C**

Competition

- 5th team at the Quantitative Management Initiative Hackathon 2021

Machine Learning Projects

- Portuguese Wine Quality Prediction using PCA and multilinear regression with Numpy
- Implementation of LDA, Logistic Regression and its regularization (Lasso, Ridge) with scikitlearn and Numpy
- Implementation of classifiers evaluations with Numpy
- Implementation of a multi-features randomized logistic regression from scratch including automated visualization of hyperparameters tunings (learning rate, Lasso and Ridge regressions)

Deep Learning,

- Implementation of a LSTM neural network which aimed at predicting laser signal in a recursive fashion – including hyperparameters tuning (batch normalization, learning rates, optimizers etc.) including an explanation of the architecture chosen in a report – programmed with Keras in Tensorflow 2.0

Knowledge Graphs & NLP Projects

- Information retrieval & Text Mining project to connect the community of investigators researching novel coronavirus – tools used: NLP libraries, Neo4j and Stanford Core NLP
- "Financial trends prediction from sentiment-analysis of knowledge graphs built from tweets and financial indicators on the S&P 500" (graded 9/10)

Technologies and tools used:
LSTM neural networks, various API, several Python scripts, RDF mapping files, SPARQL queries, statistical and financial analysis – including a project report

Main research projects

- Master's research project (M1) untitled "Decoding Speech from Invasive Brain Activity", in partnership with the Department of Neurosurgery (C. Herff) and Data Science of Maastricht University (K. Driessens)
- Master's thesis (under NDA)