**Θέματα μεταπτυχιακών διατριβών**

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[1] Bitcoin Automated Trading with Deep       Reinforcement Learning.

[2] Credit Risk Predicting with Ensemble of Classifiers.

[3] Performance Measurements with Deep Recurrent Networks and Transformers.

[4] Citation Network Construction and Analysis with Graph Networks.

[5] Link Prediction in Social Networks

[6] Spatio-Temporal Migration Patterns via Social Network Analysis

**Credit Risk Prediction with Ensemble of Classifiers.**

Description: The primary objective of this project is to predict the probability of default for a given loan borrower by approximating his/hers FICO score through the utilization of

                    an ensemble of state-of-the-art machine learning classifiers. FICO constitutes a well-respected credit scoring measure whose analytical formulation is not publicly

                    available. Thus, the main focus of the project will be on developing an alternative credit scoring mechanism that will mimic the behaviour of FICO on the basis of a

                    set of objective features that can be extracted from the entry-level data provided by each candidate borrower. Such features include the loan amount, the annual

                    income, credit utilization and the revolving balance. Alongside with traditional machine learning approaches, Genetic Programming may be employed in order to

                    form analytically tractable expressions that can result in explainable AI applications.

Prerequisites: Machine Learning Fundamentals, Deep Learning, Genetic Programming, MatLab or Python.

**Detection of Spatio-Temporal Migration Patterns via Social Network Analysis**

Description: The primary objective of this project is to model the spatio-temporal migration patterns of refugees during the ongoing war in Ukraine by incorporating vast

                    volumes of publicly available data that can be mined by utilizing the academic search api of Twitter. In particular, by collecting and aggregating the relevant twitter

                    posts through geo-location filtering, a migration network structure will be formed that will allow for further structural analysis of the underlying graph object.

Prerequisites: Network Analysis and strong programming skills in Python.