

# UNIVERZITA J. SELYEHO SELYE JÁNOS EGYETEM

Fakulta ekonómie a informatiky

Gazdaságtudományi és Informatikai Kar

# Real-time stock market price data analysis using neural networks

Diplomamunka Bc. Eugen Fekete ISBN 000-00-000-0000-0 2025, Komárno

#### UNIVERZITA J. SELYEHO SELYE JÁNOS EGYETEM

#### NÁZOV FAKULTY

Fakulta ekonómie a informatiky Gazdaságtudományi és Informatikai Kar

#### NÁZOV PRÁCE Analýza údajov o cenách na burze v reálnom čase pomocou neurónových sietí

Ide jön az

Študijný program: Aplikovaná informatika Tanulmányi program: Alkalmazott Informatika

Študijný odbor: Informatika Tanulmányi szak: Informatika

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### **Feladatkiírás**

A szerző egy feladatot oldott meg. Még egy kicsit hosszabb, még egy kic

## Opis práce

Autor vyrešil úlohu, ešte trošku dlhšie, ešte

### **Abstrakt**

ešte trošku dlhšie, ešte t

Kľúčové slová: klúč1, klúč2, klúč3,

### **Absztrakt**

A szerző egy feladatot oldott meg. Még egy kicsit hosszabb, még egy kic

Kulcsszavak: kulcs1, kulcs2, kulcs3

## **Abstract**

Little longer, Little

Keywords: key1, key2, key3

### Introduction

Machine learning (ML) plays a pivotal role in many areas of modern sciences, whether in industry, healthcare, finance and other fields. It can be used to provide a better service for the users of a search engine, a social media site or a media service provider by learning from the behaviour of the average user, predict stock prices within a specific time interval based on company performance measures and economic data, identify the risk factors for certain health conditions derived from clinical and demographic variables, identify the characters in a handwritten address from a digitized image, and so on. [2]

The main objective of ML is to find rules or patterns in data to achieve certain goals. In the financial world, for example, this might involve extracting useful information from the available data to support or automate investment activities. These activities include observing the market and placing buy or sell orders based on the conclusions drawn. [3]

## 1. Elméleti rész

Lorem ipsum dolores

#### 1.1 Machine Learning

The more common way of making a computer do work is to execute a computer program created by a human programmer. This program contains the steps and rules that turn input data into the appropriate answers, called output data. Machine learning mixes up these steps: the machine examines the input and output data, and tries to figure out what the rules should be. A system working like this is said to be trained rather than programmed. It is during the training process that the system identifies these rules by learning the patterns and relationships in the available data. [1]

Learning can be described using the definition provided by the renowned computer scientist and machine learning researcher, Tom Michael Mitchell:

A computer program is said to learn from experience E with respect to some class of tasks T and performance measure P, if its performance at tasks in T, as measured by P, improves with experience E.[4]

As an example, a text recognition program, a so called Optical Character Recognition (OCR) software can be presented. The main goal of such a program is to correctly recognize and convert handwritten characters into digitized text. A collection of texts written in different styles is presented to the OCR software. This collection, which the system uses to learn, is called the training set, where each instance is labeled appropriately. The actual machine learning part of the software that learns and makes predictions is called the model. In this example, the task T is to recognize handwritten characters and correctly classify them, the experience E is the training set provided for learning and the performance measure P could be the accuracy of the recognition.

#### 1.2 Mégegy alfejezet

The example mentioned described a ML system performing supervised learning and solving a classification problem. We talk about supervised learning when a training set with appropriately labeled data is available for the learning process. Two other well known types of learning are unsupervised learning, where no training set with labeled data is available, and reinforcement learning, where a software agent learns rules by interacting with its environment. A classification problem is a problem where each input can be sorted into discrete number of classes. In the previous example each letter in a text can be classified as one of the letters of the alphabet. If we want to predict land prices, we don't expect labels as outputs, so we can't speak of classification problems. This is known as a regression problem and we expect continuous numerical values as outputs, for which a regression algorithm is used.

#### 1.2 Mégegy alfejezet

#### felsorolás

- LLE low-level emuláció alacsony szintű emulátorok
- HLE high-level emuláció magas szintű emulátorok

#### 1.2.1 Al-alfejezet

Még egy kicsit hosszabb, még egy kicsit hossza

#### felsorolás

- minden függvény-blokk atomikus, vagyis mindig lefut az elejétől a végéig, és nem szakad meg soha
- a függvény-blokkban nincsenek elágazások

<sup>&</sup>lt;sup>1</sup>lábjegyzet

• minden függvény-blokknak van egy maximum nagysága

Monospace betűtípus fetch, decode és execute

Nevesített paragrafus. A dőlt idézet [Ubershaders:ARidiculous].

Beilleszteni egy képet így kell: A képre mindig kell hivatkozni a szövegből!!!

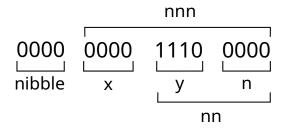


Figure 1.1: Utasítás felépítése

#### 1.2.2 Így szedjük helyesen a C# nyelvet

# 2. Gyakorlati rész

Még egy kicsit hosszabb, még egy kicsit hossza

<sup>&</sup>lt;sup>1</sup>lábjegyzet

## **Befejezés**

Még egy kicsit hosszabb, még egy kicsit hossza

<sup>&</sup>lt;sup>2</sup>lábjegyzet

### Resumé

Autor vyrešil úlohu, ešte trošku dlhšie, ešte

### References

- [1] Francois Chollet. *Deep Learning with Python, Second Edition*. Manning, 2021. ISBN: 9781617296864 (cited on page 12).
- [2] Trevor Hastie, Robert Tibshirani, and Jerome Friedman. *The Elements of Statistical Learning: Data Mining, Inference, and Prediction, Second Edition.* Springer, 2009. ISBN: 9780387848570 (cited on page 11).
- [3] Stefan Jansen. Machine Learning for Algorithmic Trading: Predictive models to extract signals from market and alternative data for systematic trading strategies with Python, Second Edition. Packt Publishing, 2020. ISBN: 9781839217715 (cited on page 11).
- [4] Tom Michael Mitchell. *Machine Learning*. McGraw-Hill Education, 1997. ISBN: 9780070428072 (cited on page 12).

