



**UNIVERSITY OF SCIENCE AND TECHNOLOGY  
COLLEGE OF GRADUATE STUDIES AND  
ACADEMIC ADVANCEMENT**

Faculty of Computer Science and Information Technology

**Combining Data Mining and Neural Network Algorithm to  
Provide Prediction Framework for Gold Price Work on  
DDBS or Big Data Resources**

By

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A Thesis

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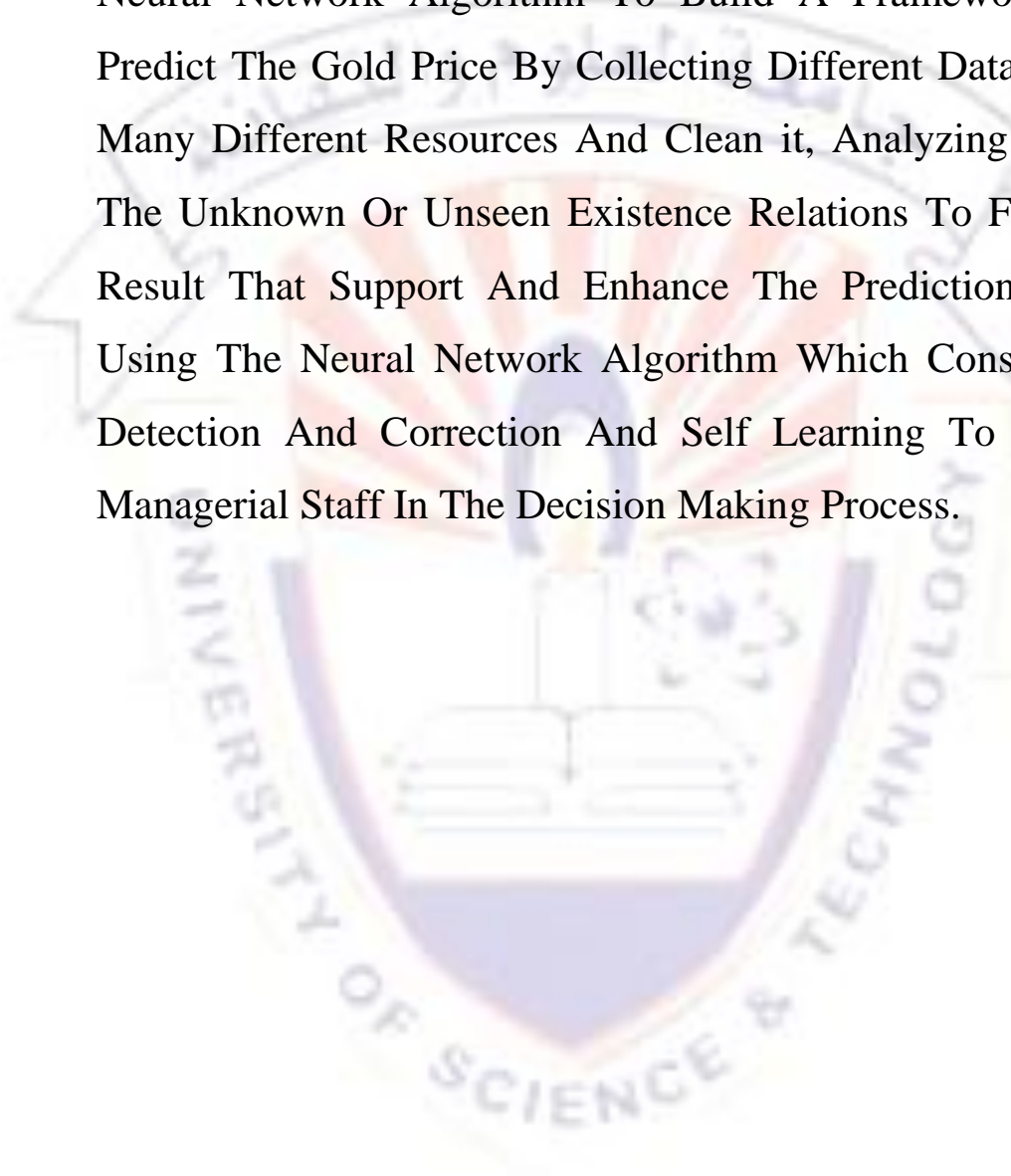
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## **Abstract**

This Research Provide A Combination Between Data Mining And Neural Network Algorithm To Build A Framework That Can Predict The Gold Price By Collecting Different Data Types From Many Different Resources And Clean it, Analyzing it, And Find The Unknown Or Unseen Existence Relations To Find A Useful Result That Support And Enhance The Prediction Process By Using The Neural Network Algorithm Which Consists Of Error Detection And Correction And Self Learning To Support The Managerial Staff In The Decision Making Process.



## المستخلص

تتعلق عملية التنبأ بأسعار الذهب بكمية من المتغيرات حسث يتناسب بعضها طرديا مع اسعار الذهب و بعضها عكسيا مع اسعار الذهب مما يعيق عملية اتخاذ القرار فى التنبأ بأسعار الذهب

هنالك مشاكل رئيسيه تواجه متخذى القرارات الأقتصادييه فى عملية التنباء بالأسعار الفعليه للذهب و التى يعتمد عليها الاقتصاد الكلى و الجزئى للدول فى اطار تحسين أداء عملية اتخاذ القرار باستخدام أدوات نظم المعلومات يقدم هذا البحث خطوات "Framework" للتنبأ بأسعار الذهب من خلال الجمع بين التنقيب فى البيانات و خوارزمية "Neural Networks" و التى تستخدم عملية الـ "Self-Learning" التى تحسن بنفسها أداء نتائج التنبأ بأسعار الذهب مما يساعد المدراء فى عملية اتخاذ القرارات.

## 1.1 Introduction

Now A days The Gold Price Prediction Is The Main Factors That Affect The Micro An Macro Economics The May Help Countries To be Developed And It Depend On Many Factors And This Make A Complication For The Decision Makers To Predict The Gold Price.

## 1.2 Problem Definition

The major problem in managerial process is “decision making” because the decision makers need a huge data to be processed and analyzed in a special way to give a certainty for a new solutions or decisions which leads to increase the Profit (Revenue) or reduce the Losses (Expenses) for organizations or persons.

So, in this research we provide framework mixed between CRISP-DM And Neural Network Prediction Algorithm to find an Automated And Accurate Solution To assist managers to take their decisions easily with a high degree of certainty especially in Distributed Database Systems Or Big Data and the researcher select the area of predicting gold pricing and its related factors that affect the gold price.

## 1.3 Research Objective

1- Main objective:-

- i. Provide an automated framework that provides predictable solution with high certainty and less risk for decision makers.
- ii. Framework must be a self-learning to optimize the result.
- iii. Saving time and cost.

2- Sub objectives:-

- i. Let machine collecting data or big data from (online/Offline) Resources.
- ii. Let machine analyzing and mining in big data.
- iii. Let machine discover a new patterns or relationships between big data entities.
- iv. Let machine predict to provide certainty for decision makers.
- v. Let the machine learn from its prediction process.
- vi. Let machine simplify the result in a report.

## **1.4 Research Questions**

- i. Did the machine success collecting the data???
- ii. Did the machine analyzing and mining the big data???
- iii. Did the machine provide new solution with certainty???
- iv. Did the machine provide a clear report for decision makers???

## **1.5 Research Methodology**

- i. Experimental (Descriptive).
- ii. Descriptive (Qualitative).
- iii. Evaluation.

## **1.6 Research Importance**

In General: This research provide framework to take an accurate decisions at any managerial level of (Structured or Semi structured or Unstructured), So whatever it in a (Profit or Nonprofit or Governor) institution or even in a personal level with certainty and time saving and less risks and less cost to business decision makers and provide them a new unknown hidden solutions.

In specific domain: this research provides a predictable framework that predicts the gold price and learns how to enhance the prediction to predict the nearest gold price compared to the actual price.

## **1.7Research Structure**

### **1.7.1 Chapter One: Introduction**

1.7.1.1 Introduction

1.7.1.2 Problem Definition

1.7.1.3 Research Objectives

1.7.1.4 Research Questions

1.7.1.5 Research Methodology

1.7.1.6 Research Importance

1.7.1.7 Research Structure

## **1.7.2 Chapter Two: Literature Review.**

- 1.7.2.1 A New Prediction Method of Gold Price.
- 1.7.2.2 Predicting Changes in Stock Index.
- 1.7.2.3 Forecasting Gold Returns with ANN.
- 1.7.2.4 Modeling and Forecasting Gold Price (GMDH).
- 1.7.2.5 Study On Gold Price Forecasting Technique.
- 1.7.2.6 Modeling Gold Price via (ANN).
- 1.7.2.7 Neuro-Fuzzy System Optimized.
- 1.7.2.8 Big Data Analysis for Gold Price Forecasting.
- 1.7.2.9 Forecasting the Gold Price Using Dynamic Model Averaging.
- 1.7.2.10 Forecasting Thai Gold Prices.
- 1.7.2.11 Forecasting Gold Price In Dynamic Model Averaging Framework.
- 1.7.2.12 Comparing This Research with the Previous Papers.

## **1.7.3 Chapter Three: Machine Learning**

- 1.7.3.1 Introduction to *ML*.
- 1.7.3.2 *ML* Definition.
- 1.7.3.3 Importance of *ML*.
- 1.7.3.4 Types of *ML*.
- 1.7.3.5 *ML* Application.
- 1.7.3.6 Machine Learning and Data Mining.
- 1.7.3.7 *ML* Algorithms.

## **1.7.4 Chapter Four: DDBS**

- 1.7.4.1 Database Distributed Systems
- 1.7.4.2 Distributed Database System Components
- 1.7.4.3 Types Of Distributed Database System
- 1.7.4.4 Advantages Of DDBS
- 1.7.4.5 Disadvantages Of DDBS
- 1.7.4.6 Fragmentations

1.7.4.7 Replications

1.7.4.8 Deadlock

1.7.4.9 Recovery

### **1.7.5 Chapter Five: Big Data**

1.7.5.1 Data, Big Data and Massive Data

1.7.5.2 Big Data Characteristics.

1.7.5.3 Big Data Analysis Process.

1.7.5.4 Mining With Big Data.

1.7.5.5 Big Data Tools and Techniques.

1.7.5.6 Big Data Application.

1.7.5.7 Hadoop Processing Technique.

### **1.7.6 Chapter Six: Prediction Model**

1.7.6.1 Models Category.

1.7.6.2 Business Process on Productive Modeling.

1.7.6.3 Predictive Modeling.

1.7.6.4 Predictive Modeling Process.

1.7.6.5 Prediction Algorithms.

1.7.6.6 Neural Network Basic Functions.

1.7.6.7 Neural Network Learning Techniques.

1.7.6.8 Neural Network Error Function.

### **1.7.7 Chapter Seven: Data Mining**

1.7.7.1 Data Mining

1.7.7.2 Data Mining Objectives

1.7.7.3 CRISP-DM Model

1.7.7.4 Data Mining And Warehousing

1.7.7.5 Data Mining And PLAP

1.7.7.6 Data Mining And Machine Learning

1.7.7.7 Data Mining And The Web

## **1.7.8 Chapter Eight: Design the Proposed Framework.**

1.7.8.1 Problem Formulation.

1.7.8.2 Solution.

1.7.8.3 Framework Process Diagram.

1.7.8.4 Framework Process.

1.7.8.5 Framework Steps.

1.7.8.6 Tools and Software Can Be Used.

## **1.7.9 Chapter Nine: Conclusions And Recommendations**

1.7.9.1 Conclusion.

1.7.9.2 Recommendations.

## **1.7.10 References.**

