الجمهورية الشعبية الديمقراطية الجزائرية
People's Democratic Republic of Algeria
وزارة التعليم العالي و البحث العلمي
Ministry of Higher Education and Scientific Research
المدرسة العليا للإعلام الآلي 8 ماي 1945 - سيدي بلعباس
Higher School of Computer Science
8 Mai 1945 - Sidi Bel Abbes

Graduation Thesis

To obtain the diploma of **Engineering Degree**

Field of Study: **Computer Science**

Specialization: **Computer Systems Engineering (ISI)**

Finnecs: An AI-Powered Platform for Financial Data Analysis and Insight Generation

---

Presented by **Mohamed Miloudi**
Defended on: **September, 2025** *In front of the jury composed of*

Dr. BELALIA Amina	President of the Jury
Dr. SERHANE Oussama	Examiner
Dr. BEDJAOUI Mohamed	Supervisor
Dr. BOUZIDI Khalil	Co-Supervisor

Academic Year: 2024/2025

Abstract

The exponential growth of financial information presents significant challenges for individual investors attempting to make informed decisions. Traditional approaches to financial analysis remain limited by human processing capacity and the complexity of modern markets.

This engineering thesis presents a comprehensive platform that addresses information overload in financial markets through automated data processing and artificial intelligence. The system automatically monitors multiple data sources and generates actionable insights by analyzing unstructured financial documents using advanced language processing techniques.

The platform is architected as a modular system with containerized components, featuring distributed data pipelines and machine learning workflows. A key contribution of this work is the validation of self-hosted infrastructure as a cost-effective alternative to traditional cloud-based solutions.

The outcome demonstrates a functional system that transforms complex financial data into structured insights for individual investors, achieving order-of-magnitude cost reductions compared to traditional cloud infrastructure. This work presents a practical architecture for improving access to sophisticated financial analysis through modern computational approaches.

Keywords — Fintech, Large Language Models, Financial Data Analysis, AI Agents, Self-Hosting, System Architecture, Data Pipeline, Retail Investor Tools