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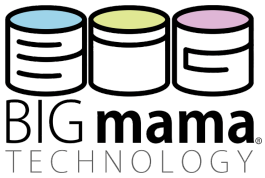

Graduation Thesis

To obtain the Industrial Engineering diploma

Option : Data Science & Artificial Intelligence

Hyko.ai: Towards drag and drop Reinforcement learning.

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In the Name of God, Most Gracious, Most Merciful

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Abstract

Hyko, currently functioning as a drag-and-drop AI tool builder, empowers users to connect multiple machine learning (ML) models and construct executable pipelines. However, a notable limitation lies in its incapacity to integrate user feedback, thus hampering the customization potential of its solutions. This thesis aims to bridge this gap by proposing a framework to enhance model performance through user-driven reinforcement learning. Our approach involves devising a system where users can provide online feedback and ratings, thereby deriving rewards for the model within a reinforcement learning paradigm. By doing so, we aspire to augment the customizability of solutions within the Hyko AI tool builder, paving the way for more adaptive and user-centric ML pipelines.

We detail the methodology for implementing this framework within the Hyko environment, including the design of user-friendly feedback interfaces and the integration of reinforcement learning algorithms. Practical evaluations demonstrate the feasibility and effectiveness of our approach across various domains, showcasing its potential for real-world applications.

This research contributes to advancing user-driven customization in AI systems, envisioning a future where ML solutions are not only powerful but also responsive to user preferences and evolving requirements.

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Glossary

Here are the main acronyms used in this document. The meaning of an acronym is usually indicated once, when it first appears in the text.

NLP	Natural Language Processing

Chapter 1

Introduction

"More data usually beats better algorithms"
Anand Rajaraman

Business Intelligence (BI) has always been about creating new insight for business by converting data into meaning that can be shared between people to drive change in the organization. One key aspect of creating meaning is to have a common shared understanding of information also known as Semantics.

Classic BI and even the newer Agile Visualization tools focus much of their selling features on attractive and unique visualizations. Preparing data for those visualizations however still remains the far most challenging task in most BI projects large and small. The ultimate goal of BI is to facilitate efficient decisions while eliminating some of the IT headache. Traditionally, BI approaches have been controlled by a centralized version of truth with a wall between IT and the business. Self-service data provisioning aims at removing this wall by providing dataset discovery, acquisition and integration techniques intuitively to the end user.