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**MSc in Data Science and Engineering Thesis**

# **BLISS HALO**

**An approach to hormone level optimization using natural stimuli with the aid of Artificial Intelligence**

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**Limassol, March 2025**

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**BLISS HALO: AN APPROACH TO HORMONE LEVEL OPTIMIZATION  
USING NATURAL STIMULI WITH THE AID OF ARTIFICIAL  
INTELLIGENCE**

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## 1 INTRODUCTION

Over the past decades there have been several research conducted regarding brain-waves activity [37] and hormone levels in alignment with human condition and behavior, mainly focused and correlated with the psychological state of groups with certain health conditions and syndromes [38, 39, 41, 42, 50].

In parallel to that, there were also several researches and experiments regarding medicine/chemicals, and how those affected the aforementioned hormone levels [35] as well as brain-waves, human behavior, and mental health state respectively.

The recent advancements in technology, and more specifically, the rapid improvement and evolution of Artificial Intelligence and Machine Learning techniques and methodologies, made running and evaluating said researches and experiments, easier, more accurate, robust, and precise; unlocking new pathways and innovations in the fields of Medicine. A strong example is the recent application of Data Science and Machine Learning methods to aid in managing and better handling the pandemic outbreak of the SARS Coronavirus 19 disease of 2019, that only lasted in critical levels for less than a couple of years with the measures and medicine applied and provided by the research teams across the world, resulting in minimizing the spread phenomena as much as possible. More specifically, there were several researches [38, 39, 40, 41, 43] that focused on deciphering, understanding the human brain's behavior, chemistry and physiology when it is affected by medical conditions including illnesses and mental state. In parallel, there has been a significant increase in research and advancements in medicinal drugs aimed at treating previously untreatable illnesses. A substantial portion of this research has focused on understanding and supporting the mental state [41, 42] of individuals in various life situations.

This shift has contributed to a broader sociological trend: the growing recognition of mental health as a critical factor in multiple aspects of human life, including family dynamics, workplace environments, and gender-specific contexts—such as pregnancy, menstruation, menopause, sexual well-being, and the psychological effects of racial or social discrimination.

This also led to many opportunities to review and revise current scientific provisions and data, as well as revisiting and conditionally refactoring an approach to certain solutions to