Chapter 7
Explainable AI in Military Training Applications

Azeem Khan

 https://orcid.org/0000-0003-2742-8034

University Islam Sultan Sharif Ali, Brunei

Noor Zaman Jhanjhi

 https://orcid.org/0000-0001-8116-4733

Taylor's University, Malaysia

Dayang Hajah Tiawa Binti Awang Haji Hamid

University Islam Sultan Sharif Ali, Brunei

Haji Abdul Hafidz bin Haji Omar

University Islam Sultan Sharif Ali, Brunei

ABSTRACT

This chapter provides an in-depth examination of the current use of artificial intelligence (AI) in military training applications, with a specific focus on the importance of explainability in these systems. The chapter begins by introducing the concept of AI in military training and discussing the challenges that come with building complex and efficient systems that can explain their decision-making processes. The chapter emphasizes the significance of explainability in military training applications, explaining how it enhances trust, transparency, and accountability. Furthermore, the chapter discusses the use of explainable AI in military simulations and presents a case study that demonstrates how it can be used to improve military training simulations and enhance decision-making in real-life scenarios.

1. INTRODUCTION

As figure 1.0, illustrates, the Artificial Intelligence encompasses several elements viz., machine learning (Mankodiya, Obaidat, Gupta, & Tanwar, 2021; S. Saeed, Abdullah, Jhanjhi, Naqvi, & Humayun, 2020; Umer), cognitive computing (Ettazi & Nassar, 2023; Mi, Quan, Shi, & Wang, 2022; Muhammad & Shamim Hossain, 2023; Usmani et al., 2020; Wu, Liu, & Wang, 2022), deep learning (Gaur, Arora, & Jhanjhi, 2022; Suri et al., 2023), neural networks (Humayun, Sujatha, Almuayqil, & Jhanjhi, 2022; Joshi, Walambe, & Kotecha, 2021; Kohlbrenner et al., 2020; Seo, Oh, & Oh, 2020) and Natural Language Processing (Ko, David Jeong, & Lee, 2023; Liddy, 2001; F. Wang, Gu, Bai, & Bian, 2023; YU, 2023).

Figure 1. Crucial elements of AI
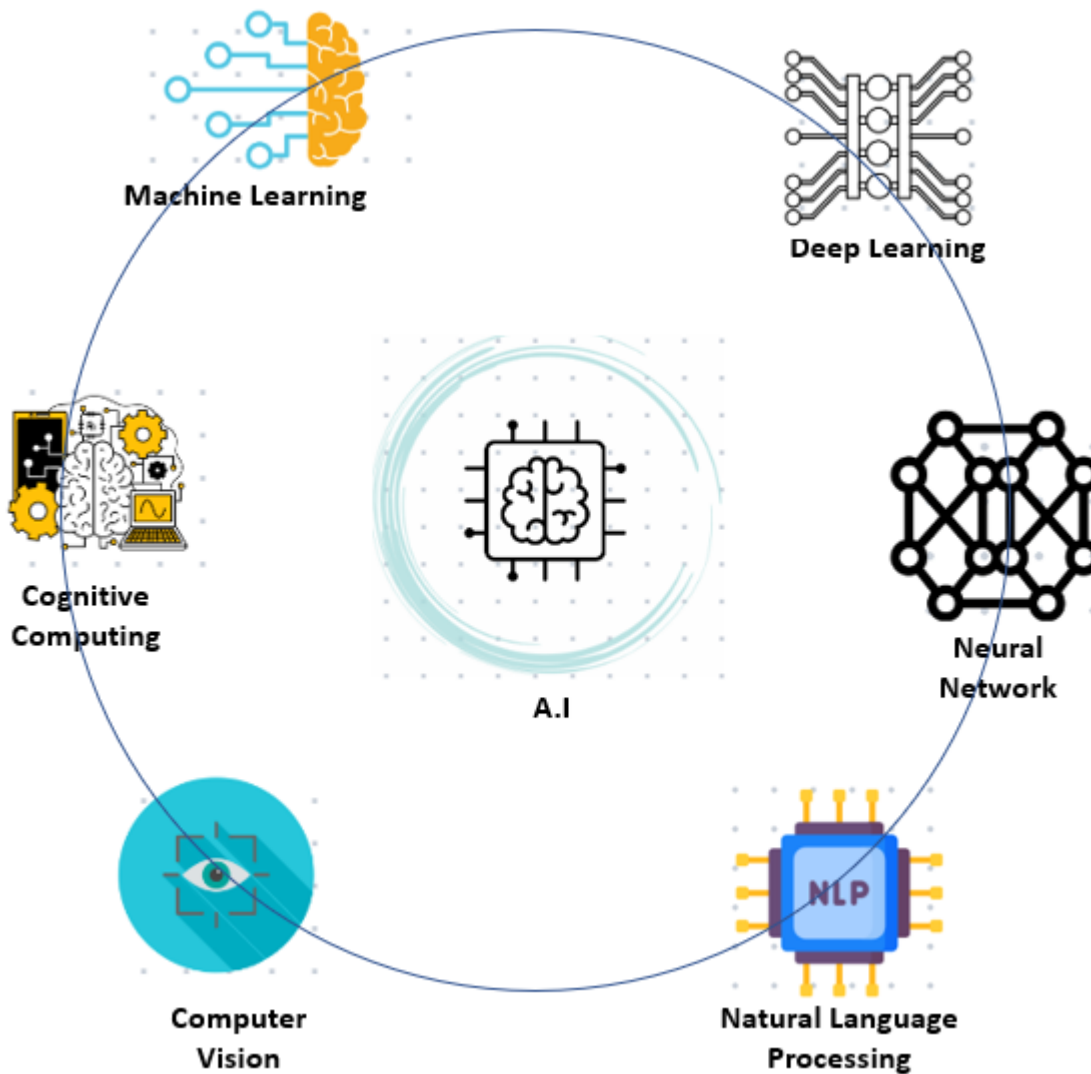
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