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Cyber Warfare: Issues and Challenges

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Abstract

The topic of cyber warfare is a vast one, with numerous sub topics receiving attention from the research community. We first examine the most basic question of what cyber warfare is, comparing existing definitions to find common ground or disagreements. We discover that there is no widely adopted definition and that the terms cyber war and cyber warfare are not well enough differentiated. To address these issues, we present a definition model to help define both cyber warfare and cyber war. The paper then identifies nine research challenges in cyber warfare and analyses contemporary work carried out in each. We conclude by making suggestions on how the field may best be progressed by future efforts.

Keywords: Cyber War, Cyber Warfare.

1. Introduction

Throughout history, mankind has waged war, seeking to further national agendas in an ever changing international game of power. From the sword battles of the past to the unmanned drone strikes of today, this game of power is constantly driven to shift and evolve by technology. The development of armoured vehicles, aircraft, ships and the use of electronics and telecommunications have all expanded the battle space and introduced new and innovative ways to gain an advantage over opponents. Just as the technological innovation of flight triggered a race to dominate the skies, the emergence of cyberspace has

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