

Modeling Bias in Official Combat Loss Reporting in the Russo-Ukraine War

Members

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Abstract

In light of the ongoing conflict between Russia and Ukraine and the inherent challenges posed by navigating through extensive amounts of potentially inaccurate and biased data regarding military equipment depletion rates, this study proposes the development of a mathematical model. Our aim is to calculate the rate at which military resources are being consumed and estimate when they might be depleted. Root-finding methods, as taught in our numerical analysis coursework, will serve as the foundation for this model. Furthermore, to enhance accuracy, numerical integration and differentiation techniques will be applied to align our predictions more closely with actual data.

This research extends beyond mere mathematical modeling; it delves into the analysis and contrast of biases in combat loss reporting during the aforementioned conflict. Employing numerical analysis techniques, we will compare official reports from Russia, Ukraine, the United States, and other relevant sources to confirmed (documented) losses. The goal is to discern and model the inherent biases of each reporting entity. Initially, separate analyses will be conducted for each source, leveraging numerical methods to formulate individual bias models. These models will then be integrated into a unified framework to optimize the fitting of the actual confirmed losses.

We aim to contribute to a deeper understanding of the discrepancies in combat loss reporting and provide insights into the reliability of official sources amidst an ongoing conflict. Additionally, we will explore the potential utility of the unified model in gaining a better understanding of real-time situations using officially reported data before any confirmation or documentation can be gathered.