12$^{\text{th}}$ ICCRTS:

Adapting C^2 to the 21$^{\text{st}}$ Century

A Computationally-Feasible Algorithm for Estimation of Opponent Strength in Urban Combat

Topics: Computational Aids, OPFOR Estimation, Infostructure

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Abstract

An estimate of the opponent's forces is both a useful object for the commander and an input required by other tools being developed as computational aids for C^2 in urban combat. The standard approach would be to maintain probability distributions over the set of potential opponent force distributions. However, that approach is not computationally feasible. In this paper, we discuss an alternative estimator which requires only a small fraction of the computational power of a laptop computer when operating on realistically-sized problems. The algorithm is developed, error bounds are obtained, and an example of the estimator operating in conjunction with an urban combat C^2 simulator is presented.