

MASTER OF SCIENCE IN MODELING, VIRTUAL ENVIRONMENTS, AND SIMULATION

**STAFFSIM, AN INTERACTIVE SIMULATION FOR RAPID, REAL TIME COURSE OF
ACTION ANALYSIS BY U.S. ARMY BRIGADE STAFFS**

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The U.S. Army has fielded a wide range of simulations for tactical units. The purpose of these simulations range from training individual skills to collective training for corps staffs. Currently fielded simulations are not designed for operational use. Most are operated by contract civilian personnel and require fixed-base facilities. Furthermore, many of these simulations require extensive lead-time to initiate useable scenarios. When the army rolls to the field, its simulations are left behind.

The Army's staff planning process places huge cognitive demands on unit staffs, often resulting in sub-optimal decision making. Simulations can provide a useful tool to help staffs visualize and understand complex time-space relationships and unit interactions. Eliminating the need for these factors to be visualized in the mind's eye allows staffs to focus their cognitive abilities on synchronizing mission plans.

This thesis develops a prototype simulation for operational use by brigade staffs. The simulation's purpose is course of action analysis as described in the war gaming step of the staff planning process. To be used operationally, the simulation must be easy to use, provide rapid scenario development, enable fast course of action analysis and run on a personal computer. To meet these requirements the simulation presented in this thesis is built using reusable software components and loosely coupled program modules.

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