COLLOQUIUM

DEPARTMENT OF MATHEMATICS AND STATISTICS
OAKLAND UNIVERSITY
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Improving Army Ground Vehicles: a success story of Applied Mathematics and Statistics

Abstract

Soldiers and marines in the theater of war depend on the vehicles designed and built by the U.S. Army and the American defense industry. As with many other industries, the military ground vehicle community has found modeling and simulation (M&S) to be a very valuable tool for the improvement of their vehicles. A lot of the new methods for improving military ground vehicles are based on M&S, instead of more traditional design-build-test-fix methods. Of course, modeling and simulation of military ground vehicles uses a lot of advanced mathematical and statistical techniques.

The scientists and engineers of the U.S. Army Tank-Automotive Research, Development and Engineering Center (TARDEC) in Warren, Michigan, are always improving ways to give our soldiers the tanks and trucks they deserve, the very best. You might be surprised by the variety of mathematics and statistics courses that play into this vital work. From linear algebra to differential equations, from probability distributions to copulas, from numerical methods to graph theory, there are dozens of classes in the Department of Mathematics and Statistics which are used by the M&S engineers. This demanding application of math and statistics can draw in almost any course in the catalog.

This talk will show some of the challenges in the modeling of military ground vehicles, and highlight a few mathematical and statistical methods which are critical to making the Army better. We will focus on the exacting problem of protecting against an underbody blast, where the M&S is giving us the most "bang for the buck".

Tuesday, February 9, 2016
3 – 4 PM
Room 135 Dodge Hall

(Refreshments at 2:30-3:00 PM in the kitchen area adjacent to 368 MSC)