

Proceedings of the Annual General Donald R. Keith Memorial Conference
West Point, New York, USA
April 28, 2016
A Regional Conference of the Society for Industrial and Systems Engineering

Multi Mission Launcher Magazine Management Algorithm

CDTs Henry Etchberger, Cody Guerry, Matthew Loza, David Williams, and MAJ Paul Santamaria

Department of Systems Engineering
United States Military Academy
West Point, New York

Software Engineering Directorate
Aviation Missile Research Development Engineering Center

Corresponding author's Email: Henry.Etchberger@usma.edu, Cody.Guerry@usma.edu, Matthew.Loza@usma.edu,
David.Williams2@usma.edu

The views expressed herein are those of the author and do not reflect the position of the United States Military Academy, the Department of the Army, or the Department of Defense.

Author Note: Cadets Etchberger, Guerry, Loza and Williams worked on this capstone project as students in the Department of Systems Engineering (DSE) at the United States Military Academy (USMA). The capstone client is the Aviation and Missile Research Development, and Engineering Center (AMRDEC). The project advisor is MAJ Paul Santamaria.

Abstract: The Multi-Mission Launcher (MML) is an advanced air defense asset for the Army that provides kinetic kill capabilities against a variety of incoming airborne threats. The MML capstone team designed a complex algorithm that generates an optimal missile rotation schedule to maximize missile availability and minimize overheating of the payload. The parameterized algorithm accounts for various inputs to include the number of missiles by type, ambient temperature, location of missile by type, and the sun and pallet elevation and azimuth. Parameterization allows the client to easily edit or add inputs to increase the capabilities and precision of the model in the future. AMRDEC will integrate the completed algorithm with the existing MML Magazine Manager system. The algorithm will work seamlessly with the existing magazine management software to produce a more lethal and efficient system.

Keywords: Multi-Mission Launcher, Army, Magazine Manager, Algorithm, AMRDEC, National Defense