LOCKHEED MARTIN

December 2013 – Present

Consultant: Algorithms Review, Redesign and Development

- Design and implementation of Kalman Filter to estimate target position and velocity with sparse ranging data.

- Design and implementation of 3 Degrees of Freedom Simulink model of projectile incorporating gyroscopic drift, wind drift, gravity and Coriolis effect algorithms; based on physical modelling of atmosphere, ambient temperature and pressure, geo-location and altitude. Used for comparison against cannon manufacturer's firing tables and subsequent generation of ballistic solution firing tables.

- Characterisation of the nature of system noise from sensors using Gaussian Mixture Models and Expectation Maximization methods.

- Reviewing design of existing algorithms and developing new algorithmic methods for turret fire control systems on Scout SV.

September 2010 – February 2011

Algorithms Development Lead on the Scout Turret Project

- Algorithms lead for the development of the turret fire control and target tracking systems of the Scout Reconnaissance Vehicle. The architectural design in Rhapsody incorporates models from Matlab and Simulink via Real-time Workshop and Stateflow. It is envisaged that the Top Down Model Based approach will take DOORS system requirements via Rhapsody and auto-generate target code and models suitable for testing within a Synthetic Environment Framework. I have been the instigator of a proposal for an enterprise integration framework which will allow the Matlab/Simulink and other federate models to run seamlessly and interchangeably with real hardware.