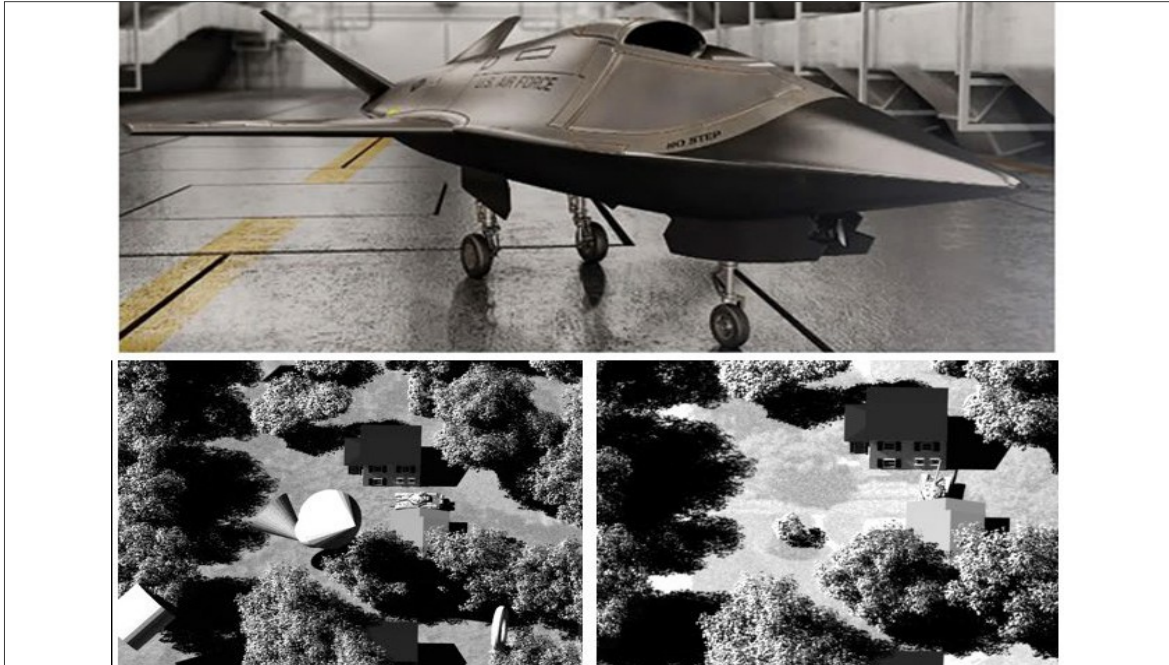


NEXT-GENERATION SENSOR SYSTEMS FOR TARGETED PLATFORMS

Success Story - Air Force

Attribution: Air Force Research Laboratory (AFRL) and Air Force Life Cycle Management Center (AFLCMC)



Examples from the DIRSIG simulation of the various targets along with confusers such as 3D geometrical shapes. Right –Notional targeted platform

! PROBLEM

The Air Force Research Laboratory (AFRL) has been collaborating with Air Force Life Cycle Management Center (AFLCMC) on building next-generation sensor systems for targeted platforms. While Digital Engineering has been employed for aircraft and ship design, it has never been used for Intelligence, surveillance, and reconnaissance (ISR) systems.

💡 SOLUTION

Digital Engineering for ISR with the Digital Imaging and Remote Sensing Image Generation (DIRSIG) code is being performed by using digitized sensor designs then simulating those designs with DIRSIG on HPCMP systems Mustang, Centennial (now retired), and Thunder (now retired). The synthetic data helps to train the machine learning systems to obtain maximum recognition performance for machine learning at the edge for the notional targeted platforms.

✅ IMPACT

To date, 660,000 synthetic chips have been generated simulating various sensor modalities. These sensors have never flown on an aircraft, but the Digital Engineering process has helped the USAF understand how the sensors would perform before a flight test. The team has been using the HPCMP systems, along with the Defense Research Engineering Network, to distribute synthetic data to multiple performers across the United States.