

Boeing and Saber leverage artificial intelligence to troubleshoot satellites

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Boeing Defense, Space & Security is collaborating with Sydney-based Saber Astronautics to deliver a proof of concept for a sophisticated diagnostic technology to support its satellite programs.

Using advanced artificial intelligence (AI) and machine learning, Saber has developed technology to predict the impact of unexpected events and erratic space weather on spacecraft, enabling operators to quickly address issues when they are encountered.

While the capability has been proven on smaller, less complex spacecraft, Boeing's investment will enable Saber to investigate the technology's application on the larger Boeing 702 Geostationary (GEO) satellites.

"Satellites are incredibly complex platforms operating in a remote environment, which can make it difficult to diagnose and address anomalies on-orbit," said Boeing Defence Australia director of emerging markets, Matt Buckle. "The proof of concept will explore the potential for Saber's technology to monitor changes in the state of the satellite, hypothesise the most probable cause of the problem and predict how the satellite will respond in specific situations.

"We look forward to establishing an ongoing relationship with Saber to further develop a diagnostic capability for GEO satellites which has the potential to significantly prolong the life of spacecraft through the early detection, analysis and quick implementation of countermeasures.

"This collaboration is also a demonstrable achievement under Boeing's statement of intent with the Australian Space Agency to invest in space research and development and innovation," said Buckle.

The technology is a key capability for JP9102, the Australian Defence SATCOM System, which requires the use of machine learning to increase the speed, quality and agility of the conduct of SATCOM Operations as compared to legacy systems.

"Boeing is interested in leveraging our spacecraft expertise along with our unique algorithms to predict anomalies and diagnose spacecraft issues more quickly on-orbit. Applying machine learning to diagnostics will reduce operator workload, and can improve spacecraft longevity and performance," said Saber Astronautics CEO, Dr Jason Held.

"Being a part of Boeing's supply chain is a great opportunity for us to apply our work to support larger and more complex missions and we are excited to be a part of this family."

This project is part of broader efforts within Boeing focused on applying cutting-edge technologies to the development and operation of space systems, including efforts on advanced autonomy, predictive analytics, on-board processing and AI-enabled networking.

These advances will allow Boeing's commercial and defence customers to fully realise the value of Boeing satellites.