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***Building an AI-enabled Foundation for Electronic Warfare Collection, Process and Exploitation***

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Abstract:

In order to manage an electromagnetic footprint in spectrum-denied environments, electronic warfare (EW) systems must be able to process and exploit signals in a congested electromagnetic environment in order to quickly deliver decision-worthy actions which may counter active threats or optimize, scale, and prioritize self-generated electromagnetic signals. Signals footprint adaptability and speed of decision making will be essential in countering complex electronic attacks while also remaining one step ahead of adversaries in future battlespaces.

Our ManTech Defense Chief Technical Officer, J David Britt, offers a framework discussion that is foundationally based upon a model-based systems engineering (MBSE) digital ecosystem (DEE) running an AI-enabled data ingestion platform. This framework can be ported to an appropriately resourced small form-factor asset for use in the field or directly connected to raw data collections for on-site, timely analysis. The data ingestion platform should be an agnostic, multi-tenant, multi-access AI-enabled data management environment that supports integration of data labeling by deploying an autonomous AI-enabled labelling toolset. This framework depends on the quick-labelling service to then feed the AI-enabled signals analysis module. The signals analysis module then rapidly provides signal analysis, advanced labelling, feature extraction and differential signal processing. The combination of data handling and analysis aids signals labeling, process feature engineering, dataset generation and anomaly detection leading to quicker decision information. Mr. Britt will speak to this framework and guide the audience through important MBSE processes and ecosystem considerations while also laying the foundation for development of this AI-enabled signals processing and analysis sandbox.