



- **Advanced Signal Processing**, as defined by Kratos SRE, is a service that provides a deep and thorough inspection of sensor outputs and data using modern methods and algorithms. The goal of this service is to provide a heightened level of understanding through consistent, simple, and unbiased information. Our signal processing team consists of seasoned scientists, mathematicians, and engineers with experience in programs that span across a wide range of sensors and systems. To meet customer needs, the team uses a mixture of commercially-available and custom algorithm suites to tailor solutions. In addition, because of the overlap between signal processing and systems integration, the team is well-poised to develop advanced, real-time signal processing capabilities that can be incorporated into fielded or ruggedized systems.
- Kratos SRE separates **Advanced Signal Processing** into two main categories:
 - (i) Cleaning and understanding signal content and,
 - (ii) Transforming signal content for downstream, decision-making processes.

Both (i) and (ii) are necessary for fielded platforms of sensors and require a thorough plan or understanding of the underlying data acquisition process from a given sensor. Kratos SRE can provide end-to-end signal analysis by connecting the dots from data acquisition to (i) and from (i) to (ii).

- To provide this well-rounded breadth of signal analysis, the team leverages its past performance in electrical, mechanical, and software engineering, included airborne sensor pods. The signal processing team specializes in time series analysis and image processing, with an emphasis on automation. This includes target tracking, spectral analysis, anomaly detection, filter characterization, linear and nonlinear filtering, interpolation and extrapolation algorithms, data clustering and segmentation, and classification methods such as neural networks. In addition, for all sensors and systems, we offer capabilities for measuring, characterizing, and mitigating noise and jitter.
- Subject matter expertise spans:
 - Electrical, electro-optical, optical, and acoustic sensors and systems.
 - Micro-processors and field-programmable gate arrays (FPGAs)
 - Visible, IR, and hyperspectral imagery
 - Analog-to-digital converters (ADCs) and Digital-to-Analog Converters (DACs)
 - Analog Signal Processing (ASP)
 - Digital Signal Processing (DSP)
 - Direct Digital Synthesis (DDS) of waveforms
 - Radio-frequency (RF) signal conditioning
- Methods and approaches include:
 - Simulink, SPICE, FEA, and other engineering simulation environments,
 - MATLAB and Python custom modules, and
 - Customizable data acquisition software that links with desired signal processing

