PAMlab INT

Automated Detections and Processing for System Integration

Intelligent acoustic analysis aboard remote platforms and vehicles

In-situ, Real-time Detections and Analysis

PAMlab is JASCO's flagship software tool for acoustic data analysis. This powerful Java-based software suite is available as PAMlab INT for embedded systems and within systems, providing on-board acoustic detections and processing, all in real time.

Acoustic data are processed into usable detections and measurements optimized for lower-bandwidth telemetry. PAMlab INT is the ideal solution for:

- Surface buoys
- Gliders
- Unmanned surface vehicles (USVs)
- Unmanned underwater vehicles (UUVs)

Detection spectrograms are converted into frequency contours that are small enough to be relayed via satellite. Superior to pitch tracks, the contours give a richer representation of the data for easier, more accurate species detection and identification.

Full Bandwidth Detections and Processing

PAMlab INT supports low– and high-frequency (and multichannel) onboard processing, providing real-time automated detections of all species of interest, including:

- Delphinids (e.g. bottlenose dolphins, pilot whales)
- Beaked whales (e.g. Blainville's and Cuvier's)
- Sperm whales
- Baleen whales (e.g. humpback, blue, and right whales)
- Deep divers (e.g. beaked and pilot whales)
- Pinnipeds (e.g. monk seals)

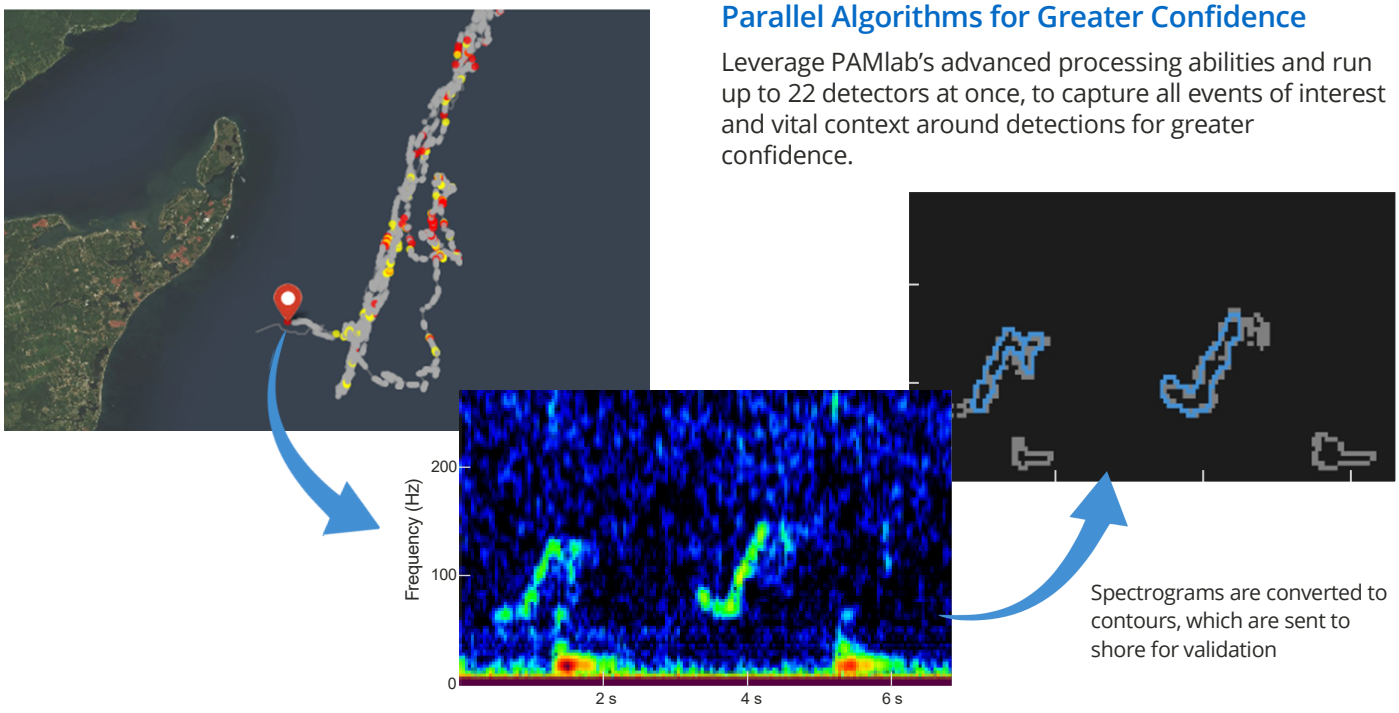
Reduce the Human Workload

Automatic detection and recommended classification of sounds reduce the workload of human analysts. Pick and choose the detectors and algorithms to suit your needs.

The detectors can be biased for low false alarm rates to provide enable stakeholders to make the correct mitigation decisions.

Parallel Algorithms for Greater Confidence

Leverage PAMlab's advanced processing abilities and run up to 22 detectors at once, to capture all events of interest and vital context around detections for greater confidence.



Spectrograms are converted to contours, which are sent to shore for validation

Accurate Noise Measurement

PAMlab INT can detect and measure with accuracy human sound sources including:

- Underwater detonations
- Sonar transmissions
- Pile-driving strikes
- Vessel noise emission signatures

Ambient Noise Reporting

Ocean ambient noise can be quantified with decidecade band sound levels and other chosen statistics.

Direction/Bearing Estimation

For systems with spatial arrays or directional sensors, PAMlab INT estimates the direction (i.e. bearing) to the sound source, within a stated margin of accuracy.

Telemetry & Data Exfiltration Management

PAMlab INT manages the flow of detections and measurement information to stakeholders. Available telemetry bandwidth is managed intelligently: detections and measurements are prioritized to ensure critical information is sent first so decision-makers can act.

Platform Integration

PAMlab INT supports control of the PAM system by the platform and communication via the platform's fitted telemetry system. The integration allows the platform to send important metadata to be recorded, to share a common time reference, command state changes, or request status information.

Data Recording

PAMlab INT supports the recording of both raw audio and platform metadata (heading, speed, RPY, etc.) for comprehensive post analysis.

Multi-Sensor Support

Myriad sensor combinations are possible:

- Single or multiple sensor deployments
- Acoustic and non-acoustic sensors
- Arrays of hydrophones
- Vector sensors

R&D Sandbox

Executing on multiple platforms, PAMlab INT can be readily modified or extended as needed. It can be a vehicle for fielding new detectors or measurement techniques. New functionality is continually being added as PAMlab evolves, including AI/machine learning detectors.

JASCO APPLIED SCIENCES

ISO 9001 Certified

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