DEEPSIG

Inferences/s: 40.2
Channel Load: 26.6
Detections: 20

y: 256 dy: 0.00
x: 880.765521 (MHz) dx: 0.00 (MHz)
Gain: 20

HARNESS THE POWER OF ARTIFICIAL INTELLIGENCE

OmniSIG® Software

OmniSIG provides a new class of RF sensing using DeepSig's pioneering application of Artificial Intelligence (AI) to RF signal detection and classification. Going beyond the capabilities of existing spectrum monitoring solutions, OmniSIG's custom deep learning approach leverages convolutional neural networks and RF tailored network architectures to maximize learned AI features. This results in a system able to simultaneously detect and classify signals and understand the spectrum environment to inform contextual analysis and decision making.

OMNISIG FEATURES

- Custom convolutional neural network created specifically for RF applications
- Up to 100x faster than traditional signal classifiers
- Up to 500MHz of instantaneous bandwidth per GPU
- Non-dependent upon specific RF frequencies
- Quickly and easily update supported signal sets of interest
- Compatible with most common COTS Software-Defined Radios and VITA-49 data streams

- Leverages time and frequency domain signal features for optimized performance compared to spectrogram-only approaches
- Identifies unknown signals that it is unable to classify
- Inputs a variety of complex IQ data types
- Outputs in standard JavaScript Object Notation (JSON) based format for easy integration into existing systems
- Compatible with both ARM-based embedded and x86-based hardware

Compared to traditional methods, OmniSIG's approach provides higher sensitivity and more robusticity in harsh and dynamic spectrum environments, while requiring less dynamic range and computational resources. OmniSIG can be deployed on everything from low-SWaP mobile systems to cloud-based high performance computational clusters and provides both a web-based user interface and streaming sensor metadata for use by customer applications and systems.

DATA-CENTRIC AI

The performance of a ML-based signal classifier is dependent on the dataset used to train the model. DeepSig engineers have decades of combined RF experience and have spent years building world-class RF datasets. DeepSig has openly published several datasets to foster increased academic focus on leveraging AI for RF applications. The OmniSIG model is trained on data collected across the globe, enhancing OmniSIG's ability to have high performance detections and classifications worldwide.

ABOUT DEEPSIG:

DeepSig, Inc. is a venture-backed and product-centric technology company developing revolutionary wireless processing software solutions using cutting edge machine learning techniques to transform baseband processing, wireless sensing, and other key wireless applications. Known as "deep learning," a proven technology in vision and speech processing now accelerates 5G network performance, capacity, operational efficiency, and the customer experience.

SIGNAL TYPES

OmniSIG's base model supports the detection and classification of the following signal types:

- LTE
- LTE UPLINK
- 5G
- WIFI
- WCDMA
- CDMA2k
- GSM
- DIGITAL-LMR
- ATSC
- FM
- BLUETOOTH
- UNKNOWN
- *Add Your Own!

Additional signal types can be readily added with our OmniSIG Studio software.

SUPPORTED HARDWARE

- 3dB Labs MONARCH - SCEPTRE plug-in
- Mastodon Design
- Epiq Solutions
- Herrick Tech Labs
- G3 Technologies, Inc.
- Deepwave Digital
- National Instruments
- Signal Hound
- SP Technologies
- Anritsu MS2090A

Readily adaptable to additional SDR's and VITA-49 data streams.

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