UBOTICA CogniSAT™ HCS

Software for Edge Compute AI Payload Processor

The CogniSAT-HCS Software is the runtime host controller that brings edge acceleration to Earth Observation, enabling persistent real-time insights

Part of the CogniSAT™ suite of solutions, the CogniSAT-HCS Software is a runtime host controller that enables AI System Developers to bring the power of Computer Vision (CV) and Artificial Intelligence (AI) compute acceleration to their on-orbit applications. The full feature set of the edge computer on the CogniSAT™ flight hardware is used for the deployment of applications to process data on board satellites in a fast and power efficient manner.

Widely Adaptable for AI and Computer Vision Deployments

Flexible and Integration Ready

The CogniSat-HCS Software is available either as a self-contained application or as a set of API's. The application (CogniSATapp), which runs on the satellites payload processor or OBC, allows the CogniSAT-XE hardware to be controlled seamlessly via a simple JSON configuration file. The AI system engineer can, therefore, harness the full power of the CogniSAT architecture with a single function call for Neural Network inference. The CogniSAT-HCS API layer is available for systems designers who wish to have more fine-grained control of the operation of the CogniSAT-XE hardware.

The software supports both Ethernet (100BaseT & 1000BaseT) and USB2.0/3.0 as the primary control and data interface to the processor, enabling data rates sufficient to handle many CV and AI applications at near-streaming throughput.

Efficient Neural Network Inference

Common NN training frameworks (e.g., TensorFlow, PyTorch, Caffe) can be used for Neural Network (NN) model development and training, with the model subsequently targeted to the Myriad device. The CogniSAT-HCS Software leverages the broad range of pre-qualified models and layers available within Intel's OpenVINO™ toolkit. Pre-trained OpenVINO™ models can be used with transfer learning, or can be deployed directly, via the CogniSAT-HCS Software.

Operational Paradigm

The CogniSAT-HCS running on the On-Board Computer communicates with the CogniSAT-XE platform to load CV and NN models to the processor, and to thereafter submit image frames for processing and receive results. The host can dynamically update the NN model over the primary interface, enabling flexible runtime solutions.

Ordering Information

Part Number	Description
CogniSAT-HCS-API	12-month site license for the use of the API Interface code in development
CogniSAT-HCS-Dev[(a)]	12-month license to use the CogniSATapp in a development environment
CogniSAT-HCS-Dep	12-month license to deploy the CogniSATapp or derivative code containing the API in an operational environment

(a) Purchase of a CogniSAT-XE platform comes with a 12-month license included in its price