EDGES

Electronic Defense Game-Theoretic Engine for SATCOM

A Hardware Add-on for SATCOM Ground Control, providing Electronic Defense (ED) in complex hostile RF environments.

EDGES combats intentional or unintentional spectrum interferences by providing RF situational awareness, and optimizing link waveform and bandwidth, based on QoS requirements and link priority.

It consists of two key innovations, the **Game-Theoretic Dynamic Resource Allocation (DRA) Engine** which combats interferences by anticipating future interference activity. To determine mitigation options and detect interferences, a novel **per-hop SNR link estimator** performs spectrum situational awareness.

EDGES's ability to provide optimal QoS under partial band partial time jamming conditions, has been proven on a simulated PTW SATCOM hub receiver. This type of receiver is found in WSOCs for command of communication payloads to and from WGS constellations.