Intelligent Fusion Technology, Inc.
www.i-fusion-i.com

ICE-B - IFT's Compression Extent Broker

ICE-B is a software package that automatically selects the best compression settings for visual media, based on the user's minimum quality requirements and bandwidth.

There is a compromise between the quantity and quality of visual media collected, sent, and stored. Data is sometimes too large to be stored or transmitted wirelessly in its raw format. In some situations, media below a certain resolution may be unusable. The ICE-B automatically determines the compression settings to provide the maximum amount of information for a specified quality loss or bandwidth limitation. This prevents the collection and conversion of data to unusable quality, saving time and resources.

At the heart of ICE-B is IFT's **CoDIFI (Compression Degradation Image Function Index)** framework, which predicts the imagery interpretability loss due to compression, using the **National Imagery Interpretability Rating Scale (NIIRS/Video-NIIRS)**. Using CoDIFI, ICE-B minimizes information loss that may result from data compression.

Specifications & Features

- Adopts user defined NIIRS/Video-NIIRS requirements
- Automatically adjusts with available bandwidth
- Robustly demonstrated with EO and IR imagery

IDEAL FOR

Satellite Imagery

Wide Area Motion Imagery (WAMI)

Full Motion Video (FMV)

COMPRESSION METHODS

JPEG
JPEG2000
H264
H265
SPIHT

ACCEPTED DATA TYPES

Visible Imagery

Electro-Optical (EO)

Infrared (IR)

Upcoming

In our **upcoming** *standalone software package* the user will set the maximal accepted NIIRS loss or maximal available bandwidth before a field assignment. Settings cannot be altered until the end of the assignment. Data will be either optimally stored on unit or transferred to the user specified location (if bandwidth allows). This prevents compromising the quality of imagery or videos collected under circumstances that cannon be re-created.

UPCOMING DATA TYPES

Synthetic aperture radar (SAR)

Multi-Spectral (MS)

RADAR

Company Overview

We are a rapidly growing company headquartered outside Washington, DC, in Germantown, MD. IFT is comprised of scientifically creative engineers with the rare ability to combine theoretical research and hardware implementation. IFT was founded in 2011. We are a woman-owned, small disadvantaged business.

Highlighted Research Areas:

- Signal and image processing
- Cooperative control and collaborative systems
- Networks and communication systems
- ATR, tracking and sensor fusion solutions
- Game and information theoretic solutions
- Display and user-interactive systems
- Antenna design and hardware implementations

Contact

✉ gchen@intfusiontech.com

☎ (301) 515-7261

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MATLAB™ Based Development Prototype Interface

The user uploads a file and supplies either the maximum acceptable NIIRS loss or the maximum available bandwidth. ICE-B compresses the file using the optimal settings based on the user input.

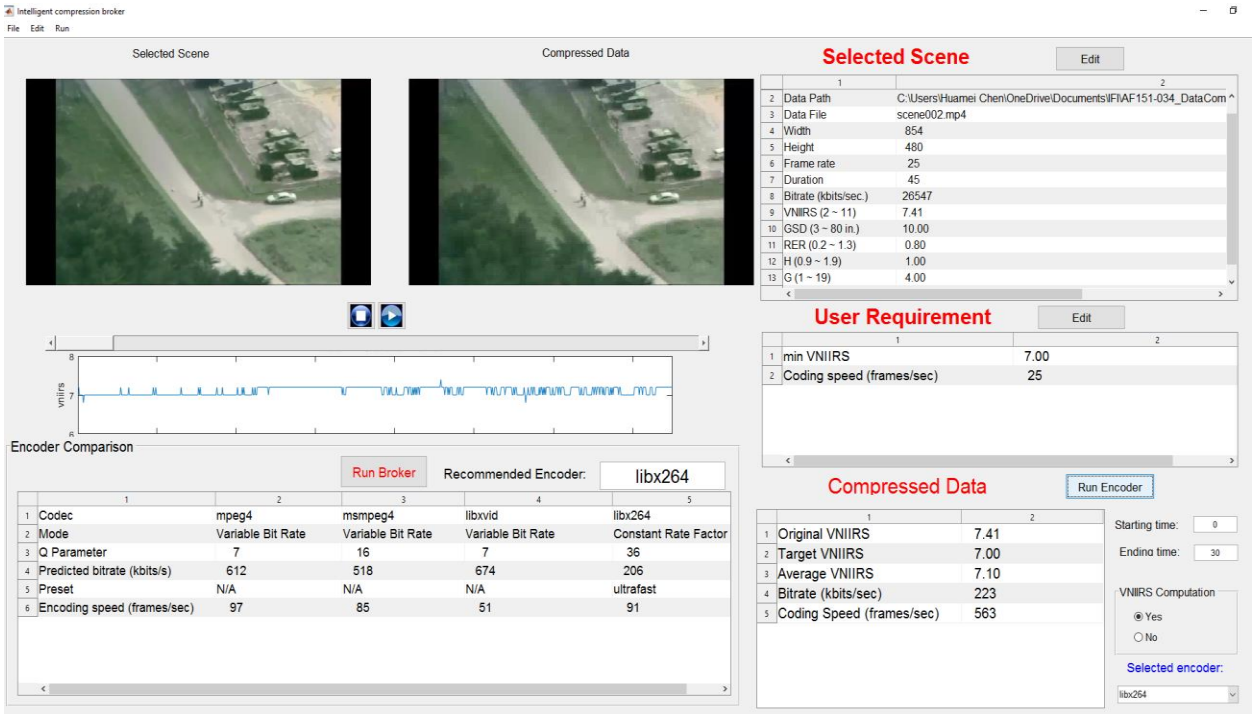

Figure 1: A screenshot of the recommended compression settings and encoder (libx264), based on user specifier NIIRS for an uploaded video.

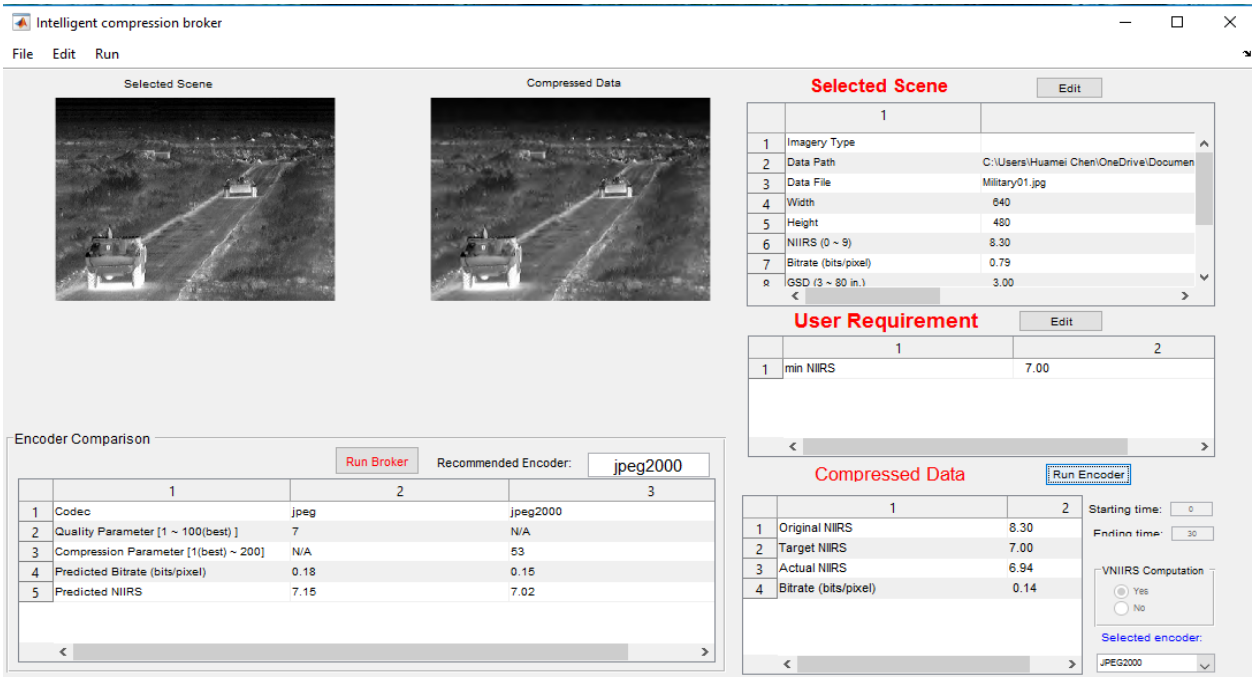

Figure 2: A screenshot of the recommended compression settings and encoder (jpeg2000), based on user specified NIIRS for an uploaded image.