



GPU TECHNOLOGY CONFERENCE

Cinnafilm Lance Maurer - CEO Who Will Save Image Quality?

GTC, San Jose Convention Center, CA | Sept. 20-23, 2010

PRESENTED BY  NVIDIA.

Progression: Film /TV to File-Based Media



- Advances in film and television technologies meant improvements in speed and quality with every new technological development
- File-based media is the first media where trade-offs of features/functionality for quality is becoming a normal occurrence

The next generation of video creators and consumers either will understand the value of image quality, or the concerns for it will simply go away.

What Is Pixel Strings?

- Streaming Cache Management Engine that enables:
 - Full motion analysis of moving images with instant interactivity for top shelf image optimization and conversion
 - 1/8th pixel accuracy for motion mapping /detection, up to 4K images
- Current Applications - “*Dark Energy*” software
 - Noise/grain reduction and removal
 - Artifact removal
 - Frame rate/standards conversion/retiming
 - Film grain simulation
 - **Market proven and in use worldwide today**



Cinnafilm Engineering: Experts in GPU Exploitation

GPU GFLOPS Performance
2004-2009



- 2004 Begins GPU Computing research
- 2005 Determines NVIDIA GPU processing capacity will dramatically outpace CPU + RAM, ports code to multi-threaded NVIDIA platform
- 2006 Breaks the real-time barrier for HD video processing
- 2007 Cinnafilm incorporated
- 2008 Develops image-optimization technology
- 2009 Ports technology to CUDA, **ARRI** OEM's technology
- 2010 Cinnafilm partners with industry leading companies **Harmonic** and **Quantel**

Pixel Strings at work:

Motion
Vector
Mapping

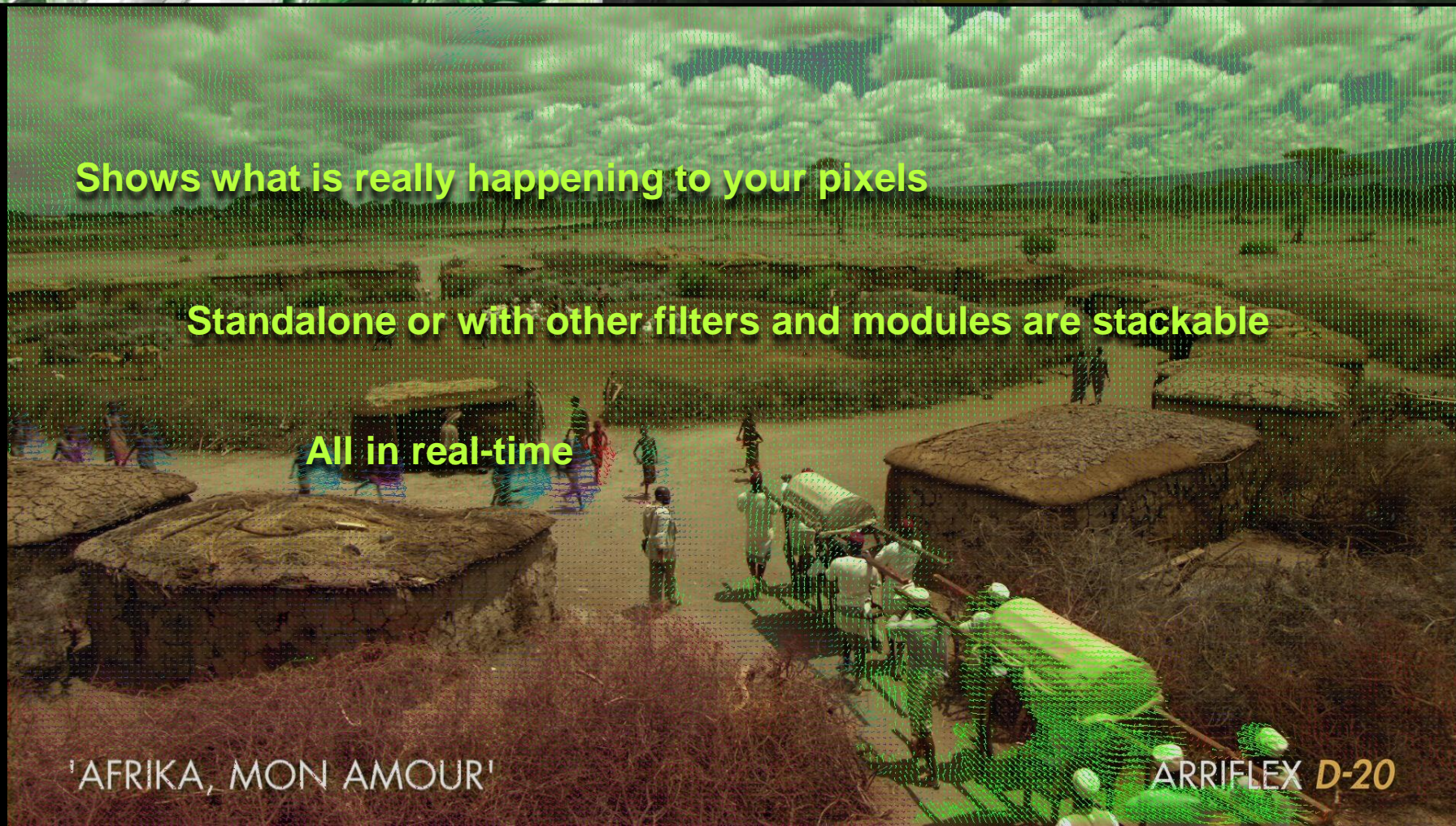
Shows what is really happening to your pixels

Standalone or with other filters and modules are stackable

All in real-time

'AFRIKA, MON AMOUR'

ARRIFLEX **D-20**



“Convert”

Frame rate
conversion and
retiming

- 25p source
- 29.97
conversion

Typical
temporal
processing

Applying
Dark Energy
motion estimation

'AFRIKA, MON AMOUR'

ARRIFLEX **D-20**

“Texture Control”

(Grain/Noise
+
FilmSim
+
Artifact Remove)

No loss of image detail

Complete control of denoise process

Pixel Strings SDK: Power for hire

POWERED BY



- **Create:** Migrate your processing filters to our powerful platform as plug-ins, Define new custom data types
- **Leverage:** Cinnafilm's existing filters (file I/O support, motion vector creation, noise filtering, etc.) and engineering expertise
- **Combine:** GPU filters (CUDA) and CPU filters (C++) in same pipeline
- **Perform:** Extensive cache management for blazing fast interactive performance
- **Visualize:** GUI makes rapid prototyping of high performance filters easy
- **Deliver:** Combine our solutions with yours and deliver the best imagery

Current state of affairs at Cinnafilm

- World class R&D experts on GPU-based image processing
- Other market opportunities we are evaluating:
 - Surveillance and Defense, Scientific Imaging
- Strong industry endorsement via partnerships
 - ARRI, Quantel, Harmonic, NVIDIA, several more presently under development
- Self-funded since inception; seeking institutional investment partners to expand into next opportunities
- Cinnafilm has kept the bar high, we believe quality is worth saving