CUSTOS

appsafrica
INNOVATION
AWARDS
2018

WINNER

BEST BLOCKCHAIN SOLUTION

Pirates, Watermarks, Bitcoin, Lawyers and Startups

Taking research on a trip to Hollywood
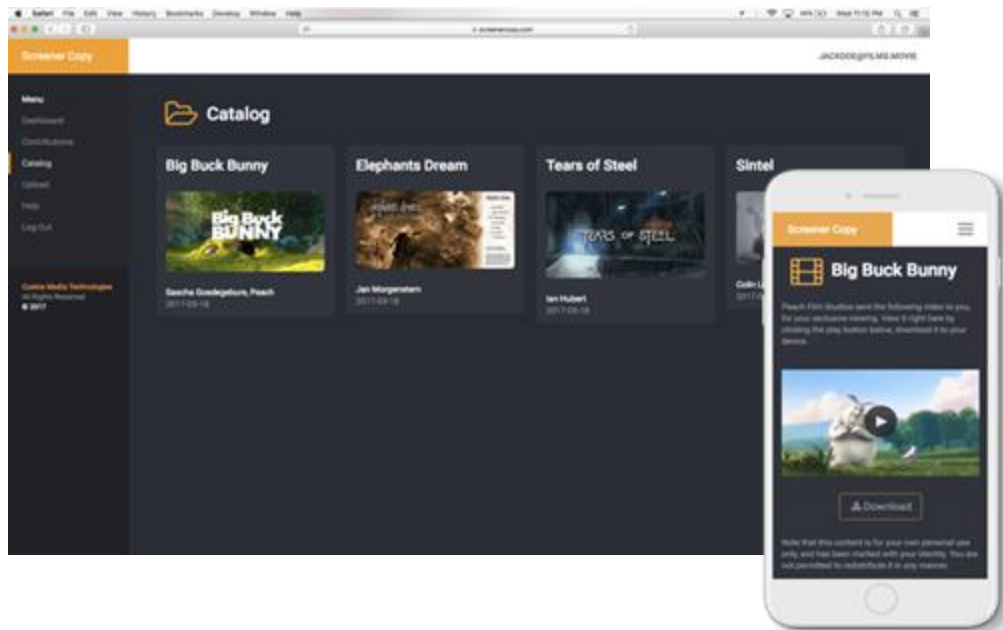
Expected opening weekend revenue: $25m

Opening weekend revenue after leak: $15m

Image credit: Lionsgate Films

USE CASE: STOPPING FILM PIRACY

Filmmakers and distributors use our Screener Copy online platform to distribute and protect their movies during the sensitive pre-release window.

custostech.com

FILM ANTI-PIRACY IS JUST THE START...

Adjacent opportunities:

- *Large global market sizes.*
- *Difficult, persistent problems.*
- *Impossible to solve at scale using other approaches.*

CUSTOS AUDIENCE ANALYTICS — $10B

Custos Anti-Piracy **MUSIC** — $1B

Custos Anti-Piracy **EBOOKS** — $2B

Custos Anti-Piracy **DOCUMENT PROTECTION** — $10B

Custos Anti-Piracy **LIVE VIDEO** — $51B

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Watermarking innovation

- **Imperceptible** (difficult to see)
- **Robust** (difficult to remove)
- **Secure** (difficult to fake)
- **Efficient** (easy to embed)
- **Dense** (can carry lots of information)

- Custos invention

  - Modulating *motion* inside video

  - Efffectively **upsample video on time axis** (frame interpolation) and downsample in a way that hides information

>1m MOVIES PROTECTED
96 LEAKS CAUGHT RED-HANDED

We solved film piracy for our clients...

*In a **$2.5 billion** market where:*

- *20-60% of films are leaked*
- *A leak reduces revenue by 19.1%*

custostech.com

THE **Hollywood** REPORTER

21, 2017

THE NEW PARAMOUNT

Jim Gianopulos, in his first interview as head of the struggling studio, talks starting over, getting fired by the Murdochs, Trump and the strategy for stability: 'It's surprising it ... happy here ... because all the elements are in place'

Paramount Pictures
WELCOMES
G-J VAN ROOYEN
Please proceed to REDSTONE 100
JIM GIANOPULOS is expecting
Extension:
VALID FOR JUNE 29, 201
A VIACOM COMPANY
"Paramount Guest" Wi-Fi password is: D

ADMIT ONE

13TH STREET

Utility Plant

Editorial

Stage 16

Stage 29
Stage 30
Stage 31
Stage 32

13TH

Stage 15

Balaban

LEONARD NIMOY WAY

Stage 28
Stage 27
B-147

West

Credit Union

Washington Square

Stage 11
Foley
B-250

Stage 14

Studio A
Stage 26

Stage 12

9TH STREET

Digital Post
Gower Mill North

The Archive

B-276

Stage 25

Studio Salon

HAVAÍC

LOCAL INNOVATION. GLOBAL ELEVATION.

12 March 2019

Attention: The Directors
Custos Media Technologies (RF) Pty Ltd
CMT Research (Pty) Ltd

BY E-MAIL:

g-j@custostech.com
fred@custostech.com

Dear G-J and Fred,

NON-BINDING HEADS OF TERMS FOR CONVERTIBLE NOTE AND EQUITY INVESTMENT

On behalf of HAVAIC Holdings South Africa Proprietary Limited ("HAVAIC"), we are pleased to set out the non-binding heads of terms (save for the break fee terms below) for HAVAIC's proposed equity investment in Custos Media Technologies (RF) (Pty) Ltd and CMT Research (Pty) Ltd, as follows:

IN THE HIGH COURT OF SOUTH AFRICA
(WESTERN CAPE DIVISION, CAPE TOWN)

CASE NO 14335/19

PH NO 154

In the matter between:

HAVAIC FUND 8 LIMITED PARTNERSHIP

Plaintiff

and

**CUSTOS MEDIA TECHNOLOGIES (RF)
PROPRIETARY LIMITED**

First Defendant

CMT RESEARCH PROPRIETARY LIMITED

Second Defendant

COMBINED SUMMONS

SA venture capitalists shocked over Havaic's bid to sue Custostech for $4.5m

By *Stephen Timm: Editor*

> Situations emerge in the process of creative destruction in which many firms may have to perish that nevertheless would be able to live on vigorously and usefully if they could weather a particular storm.

JOSEPH SCHUMPETER

Robust Invisible Video Watermarking with Attention

Kevin Alex Zhang
LIDS, MIT
Cambridge, MA 02142
kevz@mit.edu

Lei Xu
LIDS, MIT
Cambridge, MA
leix@mit.edu

Alfredo Cuesta-Infante
Univ. Rey Juan Carlos
Móstoles, Spain
alfredo.cuesta@urjc.es

Kalyan Veeramachaneni
LIDS, MIT
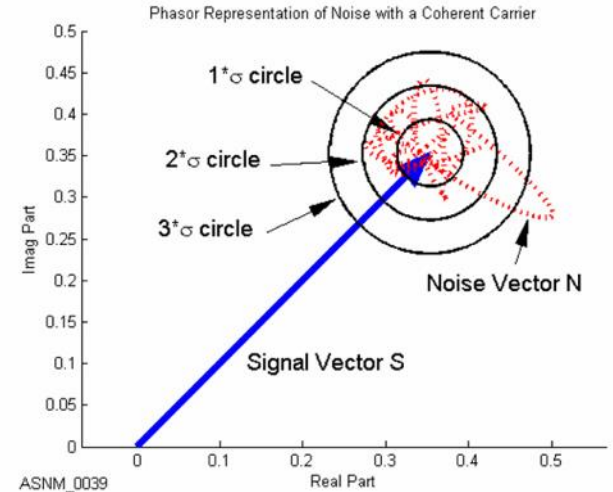Cambridge, MA 02142
kalyanv@mit.edu

Abstract

The goal of video watermarking is to embed a message within a video file in a way such that it minimally impacts the viewing experience but can be recovered even if the video is redistributed and modified, allowing media producers to assert ownership over their content. This paper presents RIVAGAN, a novel architecture for robust video watermarking which features a custom attention-based mechanism for embedding arbitrary data as well as two independent adversarial networks which critique the video quality and optimize for robustness. Using this technique, we are able to achieve state-of-the-art results in deep learning-based video watermarking and produce watermarked videos which have minimal visual distortion and are robust against common video processing operations.

quality

critic

1011010001011010110 payload

adversary

1011

encoder
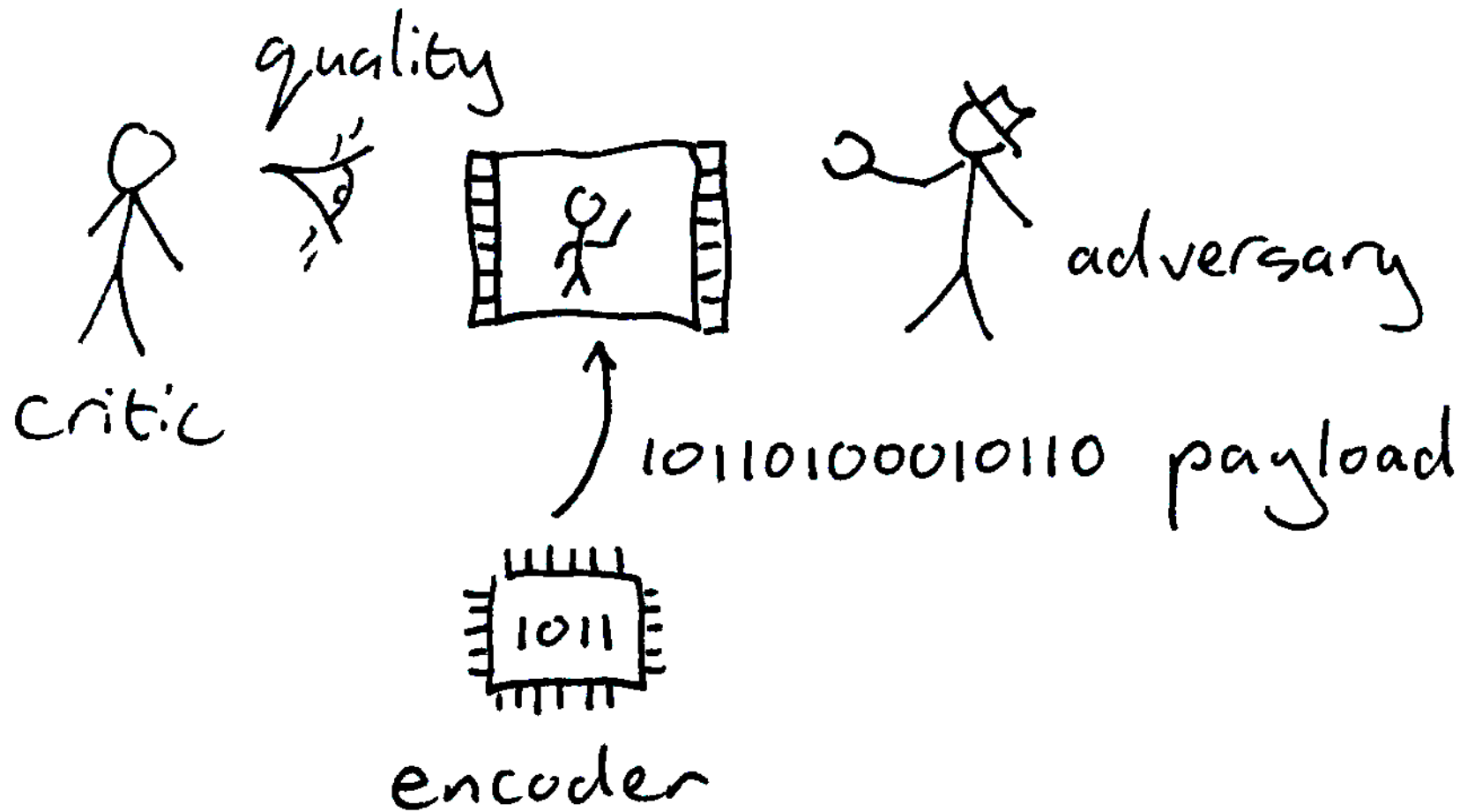
Looking at a field afresh

- Traditional communications engineering relies on simplifying assumptions

  - "Additive White Gaussian Noise" channels

  - No active interference

  - Modulation of amplitude and phase of simple sinusoids

- Reduction of complexity for human engineering

  - Classic "information engineering"

- Can ML challenge these assumptions?

Phasor Representation of Noise with a Coherent Carrier

1*σ circle
2*σ circle
3*σ circle
Noise Vector N
Signal Vector S
Imag Part
Real Part
ASNM_0039

Thank you | Dankie | Enkosi

Prof Gert-Jan van Rooyen
Research Chair in the Internet of Things
gvrooyen@sun.ac.za