



Industrial Consultancy & Sponsored Research (IC&SR)

System and Method of Generating Pan-Shots from Videos IITM Technology Available for Licensing

PROBLEM STATEMENT

- In the present era, Pan photography or panning is basically an imaging technique, that involves swiveling an image capturing device such as a video camera, horizontally at a fixed position.
- Generally, a "pan shot" is produced by using **conventional techniques** which may have to deal with a **blurry image** leading to undesirable artifacts. Further, the prior techniques involve a great amount of **manual effort** from the camera operator wherein manual effort comprises setting the correct shutter speed, ensuring autofocus mode, adjusting the exposure & tracking the object, and all these should happen in perfect harmony.
- Hence, there is a need to address above issues by introducing subject invention.

TECHNOLOGY CATEGORY/MARKET

Technology: Pan Photography or Pan-shots from videos;

Industry: Digital Photography;

Applications: Digital Photography;

Market: The global digital photography market is projected to expand USD **149.4B** in **2028** at a **CAGR** of **4.4%** during period from **2021** to **2028**.

TECHNOLOGY

- Present invention describes a **method** and **system** for automatically generating a pan shot from a video of a dynamic object.
- The system performs a deblurring operation by using a deblurring module.
- The system (Fig. 2) comprises an image capturing unit, a processing unit, and a memory unit coupled with processing unit.
- The memory unit further comprises a warping module, a segmentation module, a correlation module, a displacement computation module, a deblurring module, a rewarping module and an averaging module.

The method (Fig. 1) comprises a few steps explained using a smart-chart, & figures.

Foremost step talks about warping a plurality of frames of a captured video to compensate for background motion in the video based on homographies of consecutive frames;

Further describes about segmenting foreground from the background compensated frames in a segmentation module to create a trimap;

Next step explains that the foreground of each frame is correlated with a preceding and succeeding frame to obtain an inter-frame object displacement & a net displacement, & a relative depth of the object are determined;

A deblurring operation is performed to obtain a plurality of clear frames which are further rewarped using the net displacement to create rewarped clear frames.

KEY FEATURES / VALUE PROPOSITION

1. Technical Perspective:

Obtained **rewarped clear frames** have a **dynamic background** and **static foreground**. (Fig. 3a & 3b)

2. Industrial Perspective:

The rewarped clear frames are averaged to generate the pan shot, which has a **blurred background** and a **sharp foreground**.

INTELLECTUAL PROPERTY

IITM IDF Ref. 1497;

Patent Application No: 201641043468

PCT Application No: PCT/IN2017/050605

TRL (TECHNOLOGY READINESS LEVEL)

TRL-3, Proof of Concept ready & validated

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Images with Experimental Results

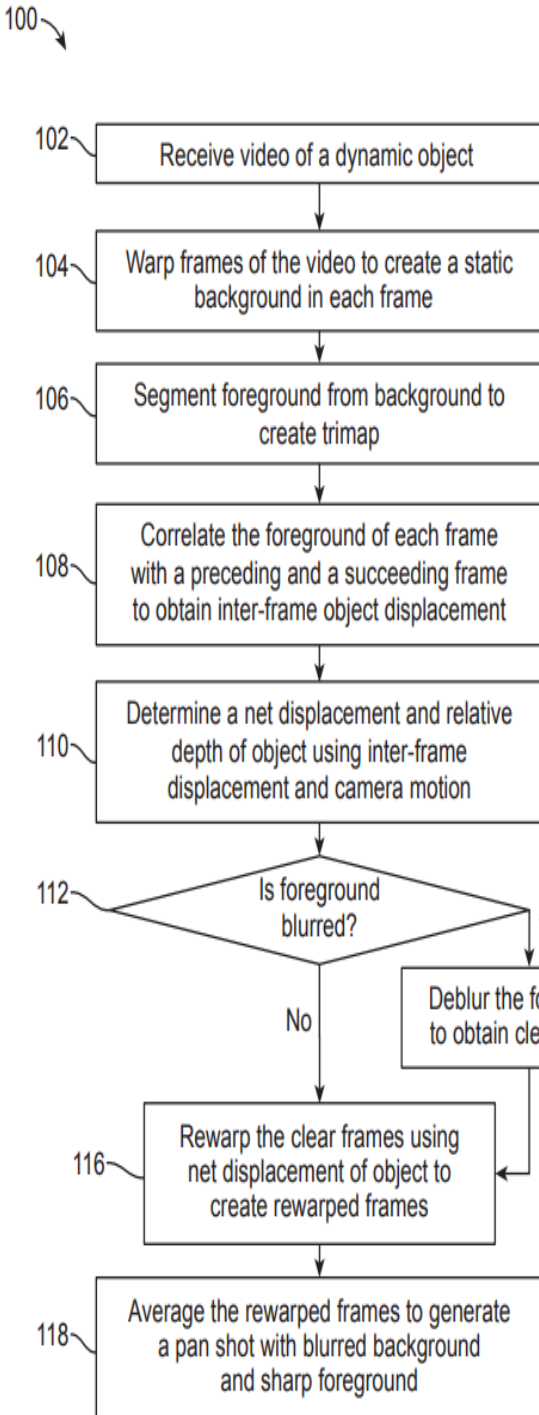


FIG.1: Illustrates flowchart of a method for automatic generation of pan shot from a video

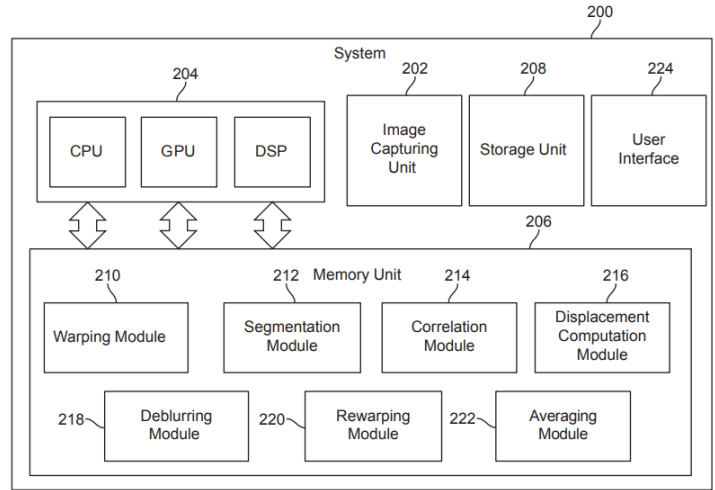


FIG. 2: Illustrates a system for automatic generation of pan shot from a video



FIG. 3a: Illustrates an input frame of a video of a gazelle;



FIG. 3b: Illustrates a pan shot generated from the video of the gazelle;

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