CPC field-specific training
H04N13: "Stereoscopic video systems; Multi-view video systems"

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- Criteria for including/excluding documents
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Introduction

Stereovision

Monocular depth cues – relative size, occlusions, linear perspective, aerial perspective, etc.
Introduction
Stereovision

Binocular disparity is defined as the difference in the location of a feature between the right eye's and left eye's image.

Horopter: 3D surface that includes the object you are fixating on and all other points in 3D space that project to corresponding positions in the two retinas.
Introduction
Stereovision

Parallax

Parallax is a displacement or difference in the apparent position of an object viewed along two different lines of sight, and is measured by the angle or semi-angle of inclination between those two lines.
Introduction
H04N13

Part of subclass H04N – Electric pictorial communication

3 sub groups

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<th>Processing, recording or transmission of stereoscopic or multi-view image signals</th>
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~ 67 000 documents
classified with CPC-classification in H04N13
Introduction
Where to find …

CPC classification scheme and definitions of H04N13

- www.cpcinfo.org
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- **How to classify**
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How to classify …

- Always classify the claims
- Use the figures and the description to interpret the claims
- Do not classify minor or well known details unless claimed as a part of the stereoscopic system
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Criteria for including/excluding documents

β Classification of stereoscopic-aspects only, like

- Stereoscopic and multi-view electronic image pick up devices (video cameras, digital still cameras)
- Stereoscopic and multi-view display devices
- Electronic signal processors

β If a stereoscopic system is used as a black box in a specific application field we do NOT classify the document in H04N13
Criteria for including/excluding documents

Furthermore, the following aspects are **NOT** classified in H04N13:

<table>
<thead>
<tr>
<th>Category</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical systems</td>
<td>G02B 27/00</td>
</tr>
<tr>
<td>Stereoscopic photography</td>
<td>G03B 35/00</td>
</tr>
<tr>
<td>Image processing or generation in general</td>
<td>G06T 7/00</td>
</tr>
<tr>
<td>Calculation or rendering of a monoscopic view of a 3D graphics object</td>
<td>G06T 15/20</td>
</tr>
<tr>
<td>Generation of 3D graphical models or scenes for digital data transmission as such</td>
<td>G06T 17/00</td>
</tr>
</tbody>
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The overall structure

3 sub groups

<table>
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<tr>
<th>Sub Group</th>
<th>Description</th>
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<td>H04N13/30</td>
<td>Image reproducers</td>
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<tr>
<td>H04N2213/00</td>
<td>Details of stereoscopic systems</td>
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⅔ **Group structure**
### Group structure

**H04N13/20 Image signal generators**

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<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>13/204</td>
<td>using stereoscopic image cameras</td>
</tr>
<tr>
<td>13/239</td>
<td>using two 2D image sensors having a relative position equal to or related to the interocular distance</td>
</tr>
<tr>
<td>13/243</td>
<td>using three or more 2D image sensors</td>
</tr>
</tbody>
</table>

**Related fields:** stereoscopic photography G03B35/00
**Group structure**

**H04N13/20 Image signal generators**

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>13/204 . .</td>
<td>using stereoscopic image cameras</td>
</tr>
<tr>
<td>13/254 . .</td>
<td>in combination with electromagnetic radiation sources for illuminating objects</td>
</tr>
<tr>
<td>13/271 . .</td>
<td>wherein the generated image signals comprise depth maps or disparity maps</td>
</tr>
</tbody>
</table>

**Related Fields:**

- **G01B11/25**
  - Measuring arrangements for measuring contours by projecting a pattern

- **G01S17/89**
  - LIDAR systems for mapping or imaging
Group structure
H04N13/20 Image signal generators

13/261 . .  with monoscopic-to-stereoscopic image conversion
13/264 . .  using the relative movement of objects in two video frames or fields
13/266 . .  by scanning a film
13/268 . .  based on depth image-based rendering [DIBR] – this group is not complete, waiting for reclassification
Group structure
H04N13/30 Image reproducers

β Devices for stereoscopic or multi-view electronic image signal display

β Devices for volumetric three dimensional electronic image signal display

β Devices for pseudo-stereoscopic display systems,
   For example: wiggle stereoscopy

This place does not cover:

β Optical systems for producing stereoscopic or other three dimensional effects G02B27/22

β Holographic volumetric displays G03H1/26
Group structure

H04N13/30 Image reproducers

for viewing without the aid of special glasses, i.e. using autostereoscopic displays
Group structure
H04N13/30 Image reproducers

13/302 . . for viewing without the aid of special glasses, i.e. using autostereoscopic displays
13/307 . . . using fly-eye lenses, e.g. arrangements of circular lenses

The present group is the only group where integral imaging displays are classified.
Group structure
H04N13/30 Image reproducers

Displays for viewing with the aid of special glasses or head-mounted displays [HMD]
Group structure
H04N13/30 Image reproducers

Volumetric displays, i.e. systems where the image is built up from picture elements distributed through a volume

Fig. 2. Volumetric 3-D displays. (a) Vibrating mirror. (b) Spinning LED’s. (c) Spinning translucent screen. (d) Spinning phosphor disc. (e) Two-photon absorption. (f) Stacked LCD’s.
Group structure
H04N13/30 Image reproducers

{Privacy aspects, i.e. devices showing different images to different viewers, the images not being viewpoints of the same scene}
Group structure
H04N13/10 Processing, recording or transmission of stereoscopic or multi-view image signals

13/106 . . . Processing image signals (for multi-view video sequence encoding H04N 19/597)

13/122 . . . Improving the 3D impression of stereoscopic images by modifying image signal contents, e.g. by filtering or adding monoscopic depth cues (H04N 13/128 takes precedence)
Group structure
H04N13/10 Processing, recording or transmission of stereoscopic or multi-view image signals

13/106 . . . Processing image signals (for multi-view video sequence encoding H04N 19/597)
13/128 . . . Adjusting depth or disparity
### Group structure

**H04N13/10** Processing, recording or transmission of stereoscopic or multi-view image signals

| 13/106 . .  | Processing image signals (for multi-view video sequence encoding H04N 19/597) |
| 13/139 . .  | Format conversion, e.g. of frame-rate or size                                       |
| 13/161 . .  | Encoding, multiplexing or demultiplexing different image signal components (for multi-view video sequence encoding H04N 19/597) |

![Diagram](image-url)
Group structure

H04N13/10 Processing, recording or transmission of stereoscopic or multi-view image signals

13/106 . . . Processing image signals (for multi-view video sequence encoding H04N 19/597)

13/172 . . . image signals comprising non-image signal components, e.g. headers or format information

13/178 . . . metadata, e.g. disparity information

G11B27 for metadata stored on recoding medium
Group structure

13/106 . . Processing image signals (for multi-view video sequence encoding H04N 19/597)

13/156 . . . Mixing image signals

13/183 . . . On-screen display [OSD] information, e.g. subtitles or menus
Thank you for your attention!