“Hole in The Wall” Game

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Introduction
Algorithm

Video In → RGB to BW → Median Filter → Median Filter → Bounding Box → Compute → Draw → Video Out
Implementation
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Error if \( \text{ref}[x][y] \& \neg \text{input}[x][y] \) is 1 → error = 1
hole, person = 0 empty space = 1
Implementation

```
Valid && Error > T
```

```
Valid && Error < T
```

```
!Match
```

```
Match
```

Diagram showing the process with steps: Video In → RGB to BW → Median Filter → Median Filter → Bounding Box → Compute → Draw → Video Out.
Conclusion

HLS pragmas: partition, pipeline, loop_tripcount, resource (AXI video), dataflow

Line buffering

Per pixel-processing vs whole image processing like OpenCV

Trouble with meeting timing constraints
Real Life Example
References

Prof. Ryan Kastner (UCSD) – Prof. Scott Mahlke (UMich) – Dr. Stephen Neuendorffer (Xilinx)

Professor Zhang

https://github.com/Nianze/TaikoGestureMaster

Images:


http://reporter.blogs.com/.a/6a00d83451d69069e2013485911205970c-320wi

https://upload.wikimedia.org/wikipedia/en/c/cb/Hole_in_the_Wall_US.jpg

http://ichef.bbci.co.uk/images/ic/640x360/p01gkwdc.jpg