The Past, Present, and Future of 3D Gaming

AKA

20 Years in 20 Minutes!

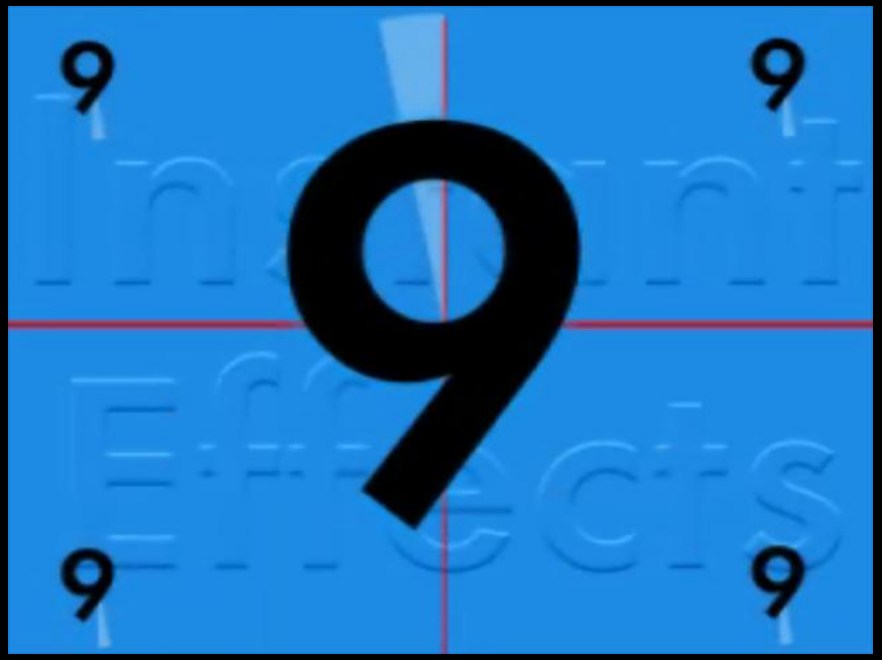
- Voice for stereoscopic 3D gaming.
- Registered non-profit corporation.
- Developing non-proprietary S-3D gaming industry and standards.
- Building community of S-3D gamers (consumers).
- Top members include Electronic Arts, Panasonic, LG Electronics, Blitz Games Studios, RealD, and more.
- Learn more at S3DGA.COM!

Early S-3D Gaming History

1. Sega Master System (Sega Scope 3D, 1988)

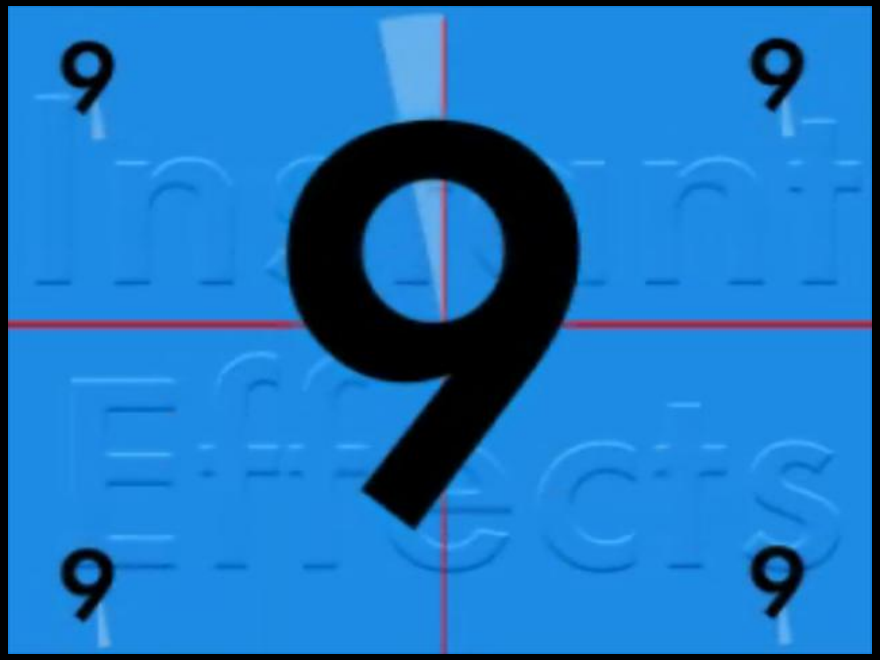
Early S-3D Gaming History

2. Sega Master System Commercial



Early S-3D Gaming History

3. Sega Master System Sample & Analysis Movie

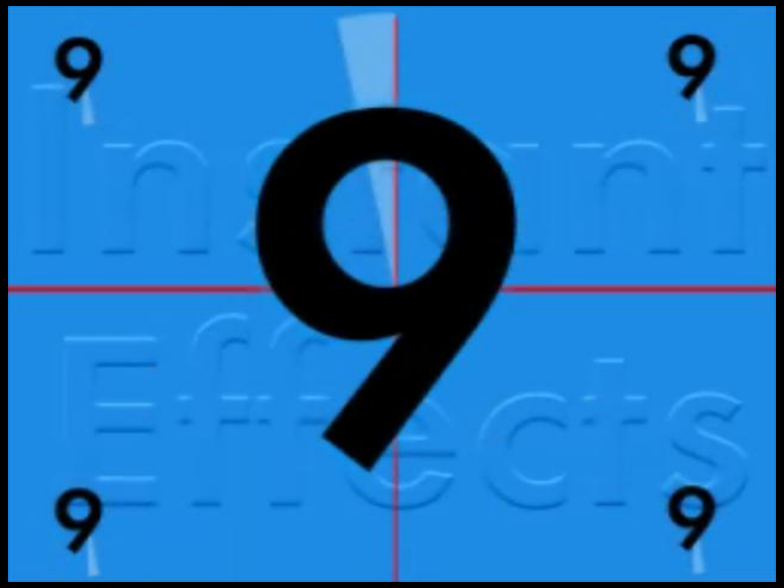


Early S-3D Gaming History

4. Nintendo's Virtual Boy (July, 1995)

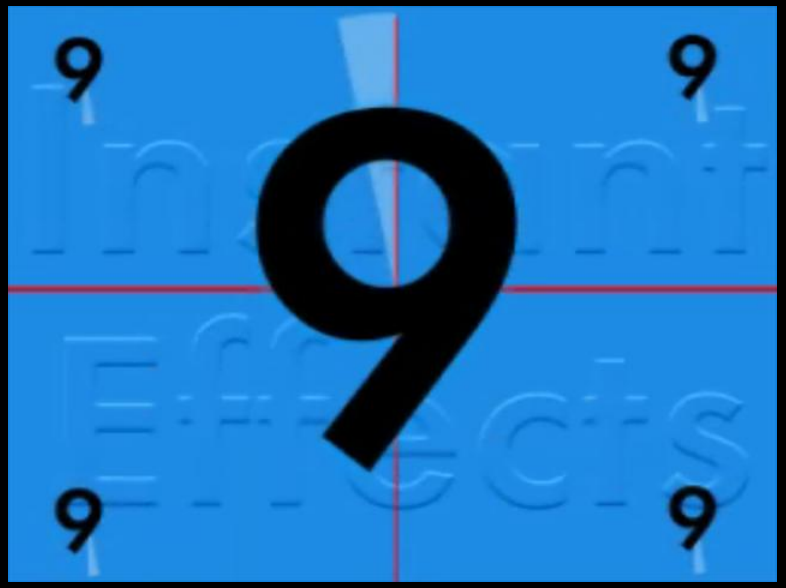
Early S-3D Gaming History

5. Virtual Boy Commercial



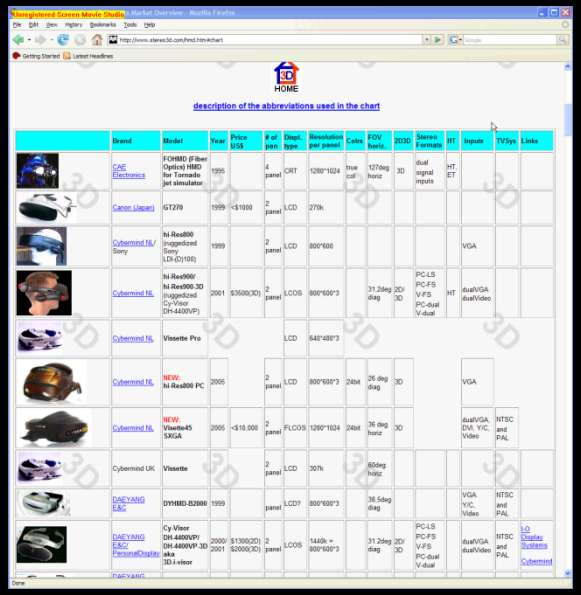
Early S-3D Gaming History

6. Virtual Boy Sample & Analysis

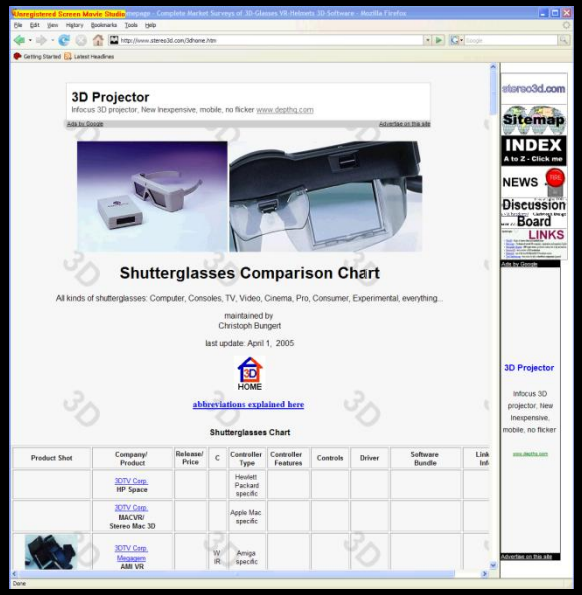


S-3D Gaming History For PC

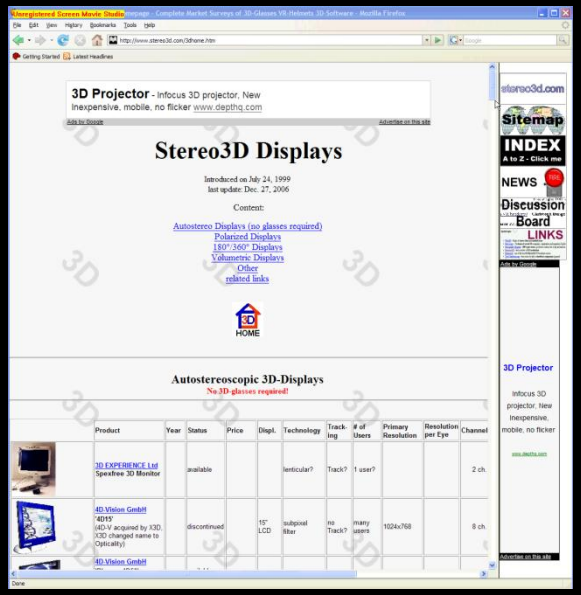
1. Dates back well over ten years.
2. Diverse market!



Head Mounted Displays



LCD Shutterglasses



3D Monitors & Displays

S-3D Gaming History For PC

3. Was problematic because:
   - Game developers had to customize their code for each solution.
   - Difficult to get content support.
   - No compatibility between solutions.
   - Limited quality.

FAIL!

S-3D Gaming History For PC

Metabyte:

- Innovation company.
- David Cook was their first Director of Engineering
- David and his team invented stereoscopic 3D driver for PC.

S-3D Gaming History For PC

How a stereoscopic 3D driver works on PC:

- Video games are written in “volumetric” 3D. Game objects have X, Y, and Z information, but only one camera view.
- Game information is communicated to hardware through API calls by DirectX and OpenGL.
- The stereoscopic 3D driver captures these API calls while the game is played, creates a second camera view, and passes the left and right image to the display.

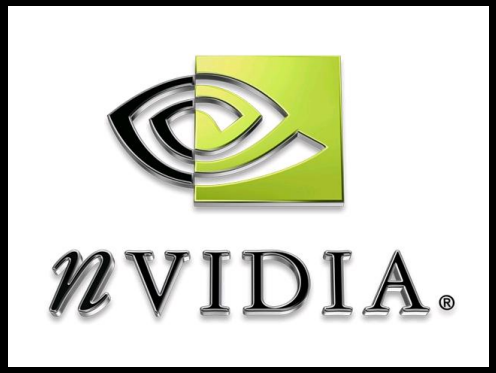
S-3D Gaming History For PC

Metabyte's Wicked3D:

- Launched Wicked3D in 1998
- First S-3D driver and LCD shutter glasses solution for PC.
- Supported over 160 game titles.
- Worked on all CRT monitors (dominant display tech)

S-3D Gaming History For PC

Early Nvidia S-3D Gaming History:



- Metabyte's S-3D technology, assets, and team acquired by Nvidia in 1999.
- David Cook joined Nvidia and headed their stereo division.
- Nvidia released 12.40 stereo drivers in June, 2001.
- Support almost all available stereoscopic 3D displays and solutions.

S-3D Gaming History For PC

Challenges remain:

- Limited compatibility. As games advanced, S-3D technology fell behind.
- CRT monitors were out, LCD panels in.
- Nvidia's software support reduced.

S-3D GAMING WAS NOT READY YET!

S-3D Gaming History For PC

Industry Shake-up of 2007:

I. Both companies released drivers that:
   - Support post processing effects (modern gaming technology)
   - Equally support Nvidia and ATI graphics cards.

II. New iZ3D drivers only worked on iZ3D monitors.

III. DDD supported Interlaced and DLP 3D technologies.

S-3D Gaming History For PC

Nvidia back in the ring!

- Nvidia announced plans for updated stereoscopic 3D drivers At CES 2008.
- Would featured DX9 and NEW DX10 support.
- Better post processing support.
- SLI capability expected, not ready yet.
- Vista OS support ONLY.
- Drivers would be exclusive to Zalman via license agreement.

S-3D Gaming History For PC

- In December, 2008, iZ3D released 1.09 stereo drivers which supported:
  - Interlaced (e.g. Zalman, Hyundai, etc.)
  - Dual output (some projectors and HMDs)
  - DLP
- DDD & iZ3D transitioned to licensing model (manufacturer and end user)
- LCD shutter glasses NOT possible because of synchronization limitations.

S-3D Gaming History For PC

- In January, 2009, Nvidia GeForce 3D Vision glasses released with Viewsonic 22” 120Hz monitor.
- Included GeForce 3D Vision 1.0 CD.
- $200 for glasses, $400 for monitor.
- 200,000 glasses sold to date!

S-3D Gaming History For PC

Additional solutions around the bend:

- At GDC 2010, AMD announced "Open Initiative" for 120Hz stereoscopic 3D support via third party developers for AMD GPUs.
- Bit Cauldron, iZ3D, and DDD are sample participants.
- DDD & iZ3D already announced and began demonstrating DX10 and DX11 compatibility.

S-3D Gaming History For Console

S-3D Gaming History For Console

Began at SIGGRAPH 2008:

- Joint presentation with Mark Rein, Co-Founder and VP of Epic Games
- Epic Games is responsible for Unreal Engine.
- Mark said that consoles like XBOX 360 and PS3 DON'T have the horsepower to driver stereoscopic 3D games.

S-3D Gaming History For Console

Blitz Games Studios' Invincible Tiger: The Legend of Han Tao:

- Released on XBOX Live and PSN in August, 2009.
- Supported majority of 3D HDTVs and displays on market.

S-3D Gaming History For Console

Ubisoft's Avatar: The Game:

- Released in December, 2009
- Supported stereoscopic 3D on PS3, XBOX 360, and PC.
- Proved that complex environments are possible on XBOX and PS3 in stereoscopic 3D.

S-3D Gaming History For Console

Sony Playstation:

- Officially announced PS3 S-3D support in November 2009 via firmware update.
- Firmware 3.30 released in April 2010.
- Firmware adds standardized support for S-3D gaming on HDMI 1.4 compliant HDTVs
- **David Coombes joins us later today!**

S-3D Gaming History For Console

XBOX 360:

- Habib Zargarpour is Creative Director for Microsoft Game Studios.
- Earlier career featured Senior Art Director title at Electronic Arts
- Also worked as Visual Effect Supervisor on titles including Star Wars: Phantom Menace, The Perfect Storm, Star Trek, and more.
- Currently serves on S3DGA's advisory board.

S-3D Gaming History For Console

XBOX 360:

- At GDC Canada, Habib Zargarpour explained that S-3D gaming will drive 3D to the home.
- Game developers can implement 3D support without formalized standards.
- The sheer volume of 3D gaming content is advantageous compared to stereoscopic 3D cinema.
- To date, an S-3D firmware update has not been announced for XBOX, but it has not been demonstrated to be necessary yet.

Mobile 3D Gaming

- E3 revealed Nintendo 3DS
- Glasses free, auto-stereoscopic 3D solution
- Growing potential for 3D cell phones (e.g. Samsung, Hitachi) and PDAs

Industry Opinions

"We will see more and more product coming in 3D on 360 and PS3 but also on portable machines...We can count on substantial growth in the 3D market just because it's more immersive, so it will be a good way for the industry to give even more emotion to the gamers."

- Yves Guillemot, CEO
Ubisoft

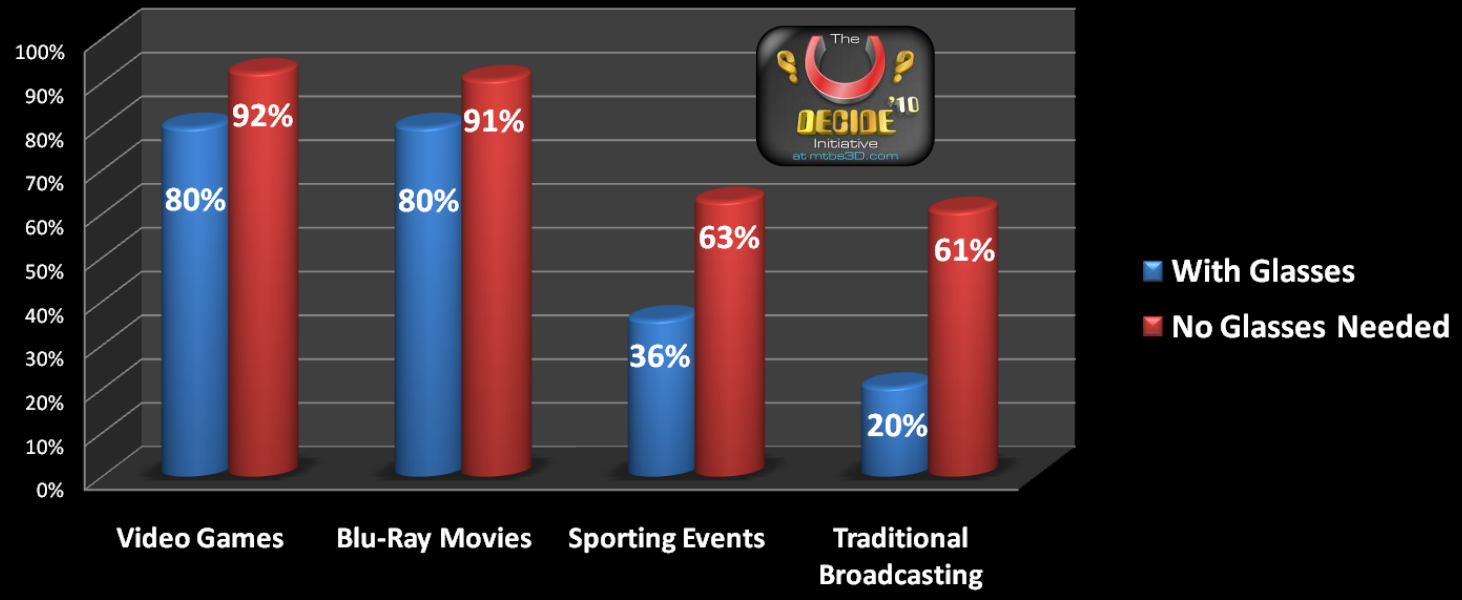
- **15% to 20% will support 3D by 2011**
- **50% of video games will support 3D by 2012**

What do Customers Say?

Facts About U-Decide 2010

- Data collected July to October 1st, 2010
- Purposely targeted to gamers (console & PC)
- 1,169 respondents
  - 735 traditional 2D gamers (don't own 3D equipment)
  - 434 experienced stereoscopic 3D gamers.
- These results are 100% based on 2D gamer portion to avoid skewing.
- TINY SAMPLING: full report will be released in November, 2010.

Willingness to Watch 3D Content With & Without Glasses

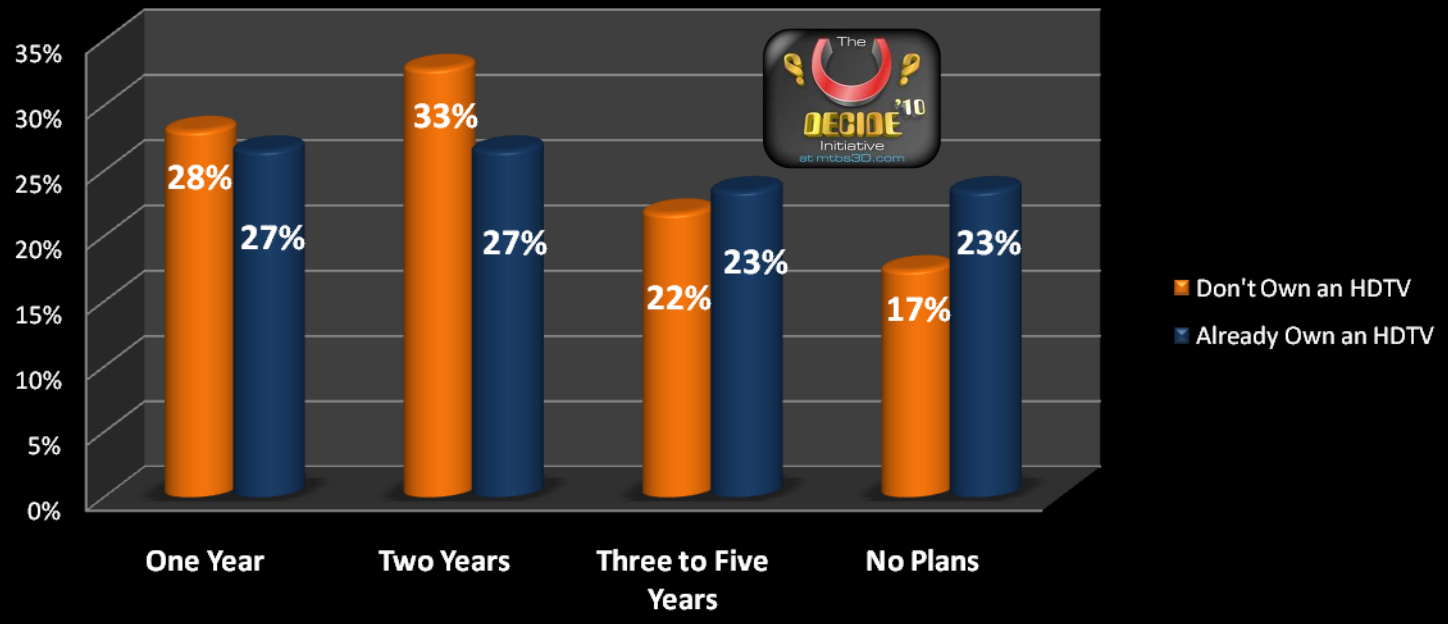


IMPORTANT: This is based on the 2D gamers group. Experienced stereoscopic 3D gamers have not been analyzed yet.

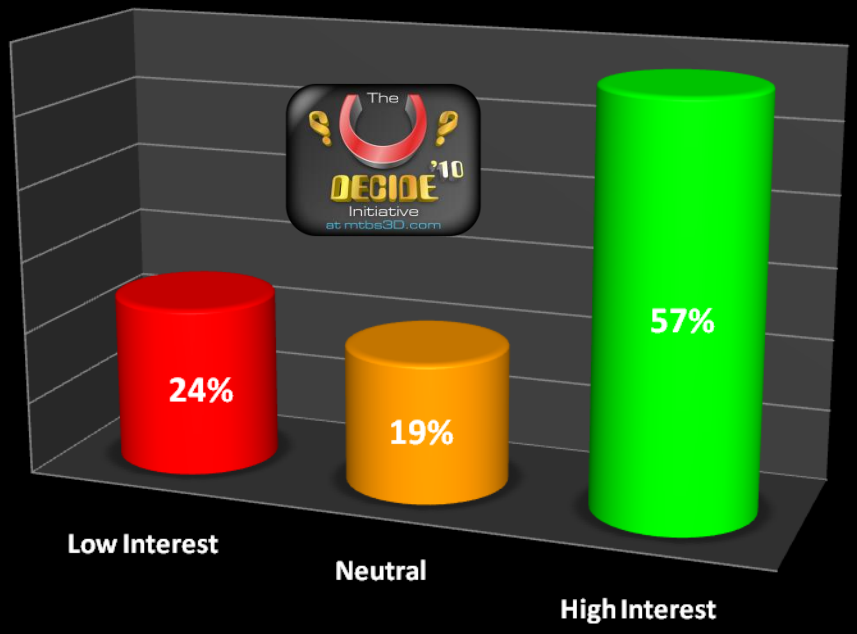
Will HDTV Owners Buy a Second TV? YES!

253 Don't Own an HDTV, 482 Already DO

3D NOT SPECIFIED

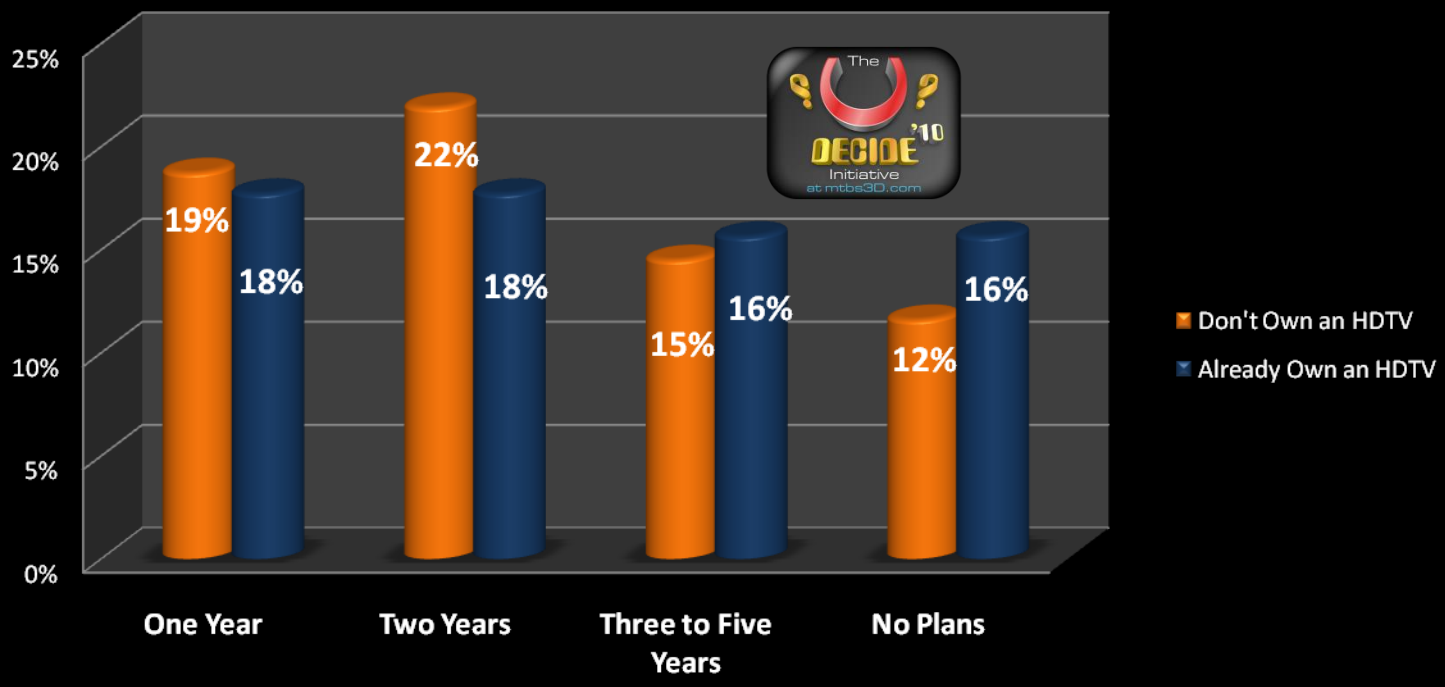


Importance of 3D as an HDTV Feature

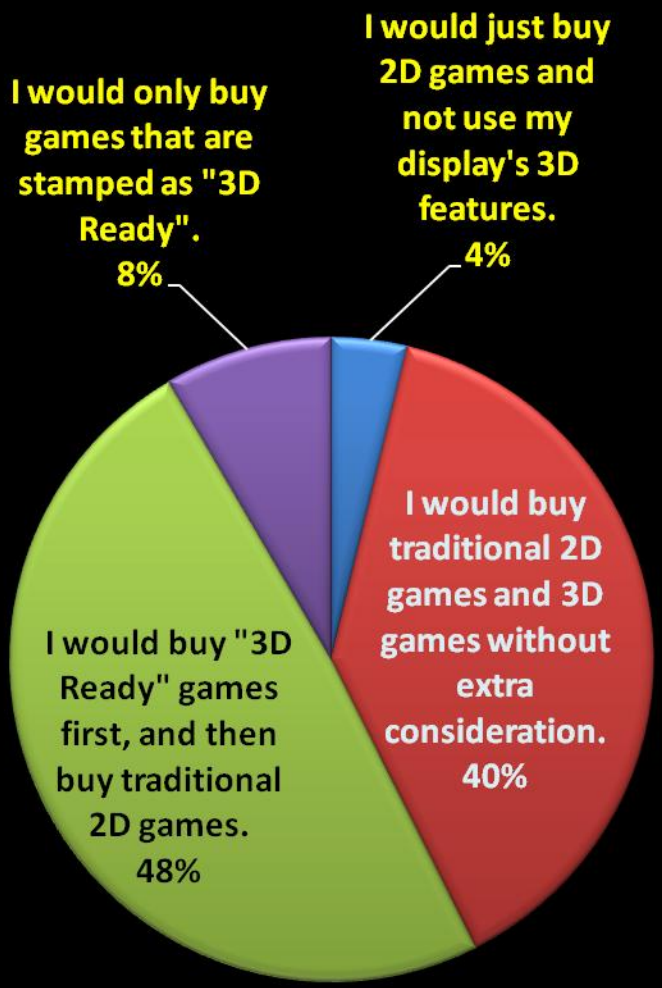


2D Gamer 3D HDTV Purchase Plans

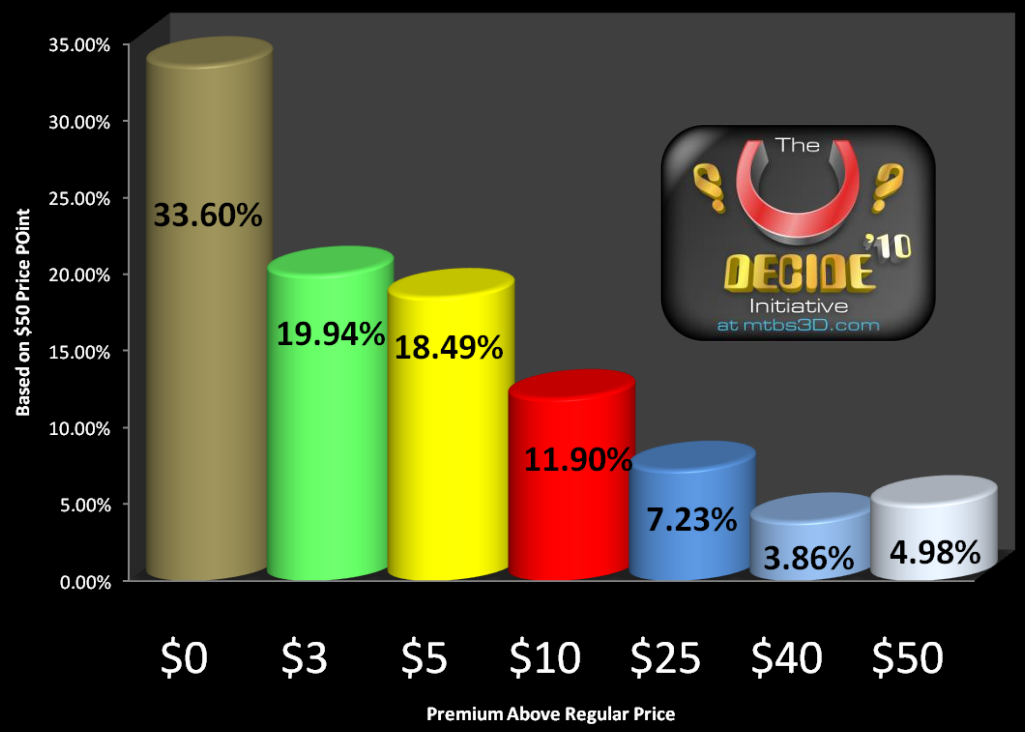
253 Don't Own an HDTV, 482 Already DO



Relationship Between 3D and Game Purchases



How Much More Would Gamers Spend For Special 3D Mode?



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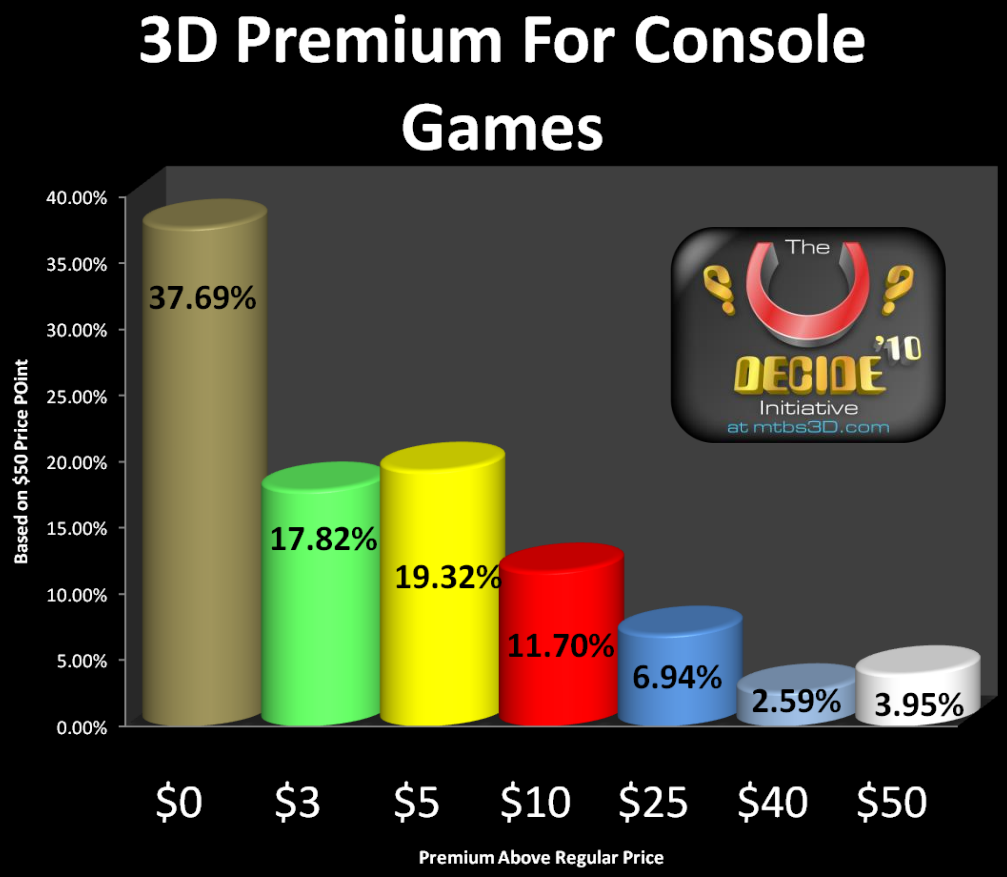

iGO3D

UOIT
CHALLENGE INNOVATE CONNECT

YORK
UNIVERSITÉ
UNIVERSITY

The University of Western Ontario

EA

DIGITAL EXTREMES

BEDLAM

UNIVERSITY OF Waterloo

io
interactiveontario

OCAD

Ontario Centres of Excellence
Where Next Happens

iGO3D

- University research on consumer response to different stereoscopic 3D gaming experiences.
- Will lead to credible guidelines for effective stereoscopic 3D game development on all platforms.
- Majority of project will be funded by Ontario, Canada government.
- No vested interests in any one technology or manufacturer.
- Findings will contribute to internationally recognized quality expectations standards.
- Founding partners are non-profit organizations.

Would you like to get involved?

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