Welcome to Virtual Reality, CS 498 SL

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About me:
• BS, applied mathematics, Kharkiv, Ukraine, 1999
• MS, Computer Science, Iowa State University, 2003
• PhD, Computer Science, UIUC, 2008
• Postdoc, Duke University, 2008-2010
• Lecturer, UIUC, 2010-present
• Oculus VR, Research Scientist, 2012-2014
A Bit About Oculus

• 2012, Palmer Luckey made a prototype headset (ducktaped!)

• Aug 2012, John Carmack improved it and showed at E3.

• Aug 2012, game industry leaders showed strong support, Oculus is founded (Brendan Iribe, Michael Antonov, Nate Mitchell, and Jack McCauley)

• Sep 2012, kickstarter very successfull.

• 2012-2014, over 60,000 headsets sold.

• March 2014, Facebook aquires Oculus for $2 billion.
What to Expect

Coursework:
• Two midterm exams, no final
• 5 machine problems (work in groups of 2 people)
• Final project (topics on the webpage)

Programming:
• VR Lab: 4240 Siebel Center
• 12 PCs with TitanBlack graphics cards 6Gb, 2 monitors 27'', Oculus Rifts DK2s
• Windows 8
• Visual Studio / Unity, free game engine
• Unity scripts in C# or Java / C++ with raw Oculus SDK
Where to Get Help

Website: https://courses.engr.illinois.edu/cs498sl/

Not in CS? Meet people outside.

Textbooks:

Class Forum: Piazza
What's This Course About

GOALS:
• Learn how to build a *good* VR experience (comfortable + adequate for task)
• Understand how VR works (engineering + psychology)
• Learn how to criticize VR
• Learn fundamentals to shape future of VR

TASKS:
• Game
• Write code
• Maintain relationship
• Relax
• Watch film
• Travel to exciting of virtual places
Inducing targeted behavior in an organism by using artificial sensory stimulation, while the organism has little or no awareness of the interference.
Examples of VR

Omni: Real Battlefield Place [Future of Gaming in the world]
Examples of VR

Mouse in VR Maze

2dforaging movie
Examples of VR

Who is the laboratory rat, and who is the scientist?
Inducing targeted behavior in an organism by using artificial sensory stimulation, while the organism has little or no awareness of the interference.

Who is the laboratory rat and who is the scientist?

Define *awareness*? (Play place cell video)
VR or not VR?

- playing second life (first person video game)
- watching a movie
- video conferencing
- listening to the music
- playing a third person video game
- AR
- talking on the phone
- reading a book
- looking at a painting
- being under the influence of a hallucinogenic drug
- wearing thermal clothes
Definitely VR

Socializing in Virtual Spaces

Open Sim, Second Life, ...
Definitely VR

Architecture and Real Estate

Do you wish your home were bigger?
Definitely VR
Definitely VR

Panoramas

Pick your favorite street views and have a look around.
Connect omnidirectional cameras to mobile robots, humanoids, quadrotors
Definitely VR

First-Person Shooter Games

Team Fortress 2, Valve Inc.
Definitely VR

VR Game Jam

What could you do with an elephant trunk?
Definitely VR

Virtual amusement park rides!
Definitely VR

Ever wonder how Louis XVI must have felt?
Definitely VR
Definitely VR

Flying Like in Your Dreams

Zurich University of the Arts