

Theory and practice of
V I R T U A L
E N V I R O N M E N T S

class web site:

<http://cadia.ru.is/wiki/public:t-vien-12-1:main>
(or find it at cadia.ru.is through external wiki)



Hannes Högni Vilhjálmsson
hannes@ru.is

Instructor

- Hannes Högni Vilhjálmsson
Associate Professor of Computer Science
hannes@ru.is
<http://ru.is/~hannes>



Instructor

- 1991-1994 B.Sc. (CS), University of Iceland
- 1994-1995 Raflind
- 1995-2003 M.SC./Ph.D. (MAS), MIT Media Lab
- 2003-2006 Information Sciences Institute, USC
- 2005- Alelo Inc.
- 2006- Reykjavik University
- 2009- MindGames

1997



1999



2003



2004



Topic

- **Theory** and **Practice** of Virtual Environments

“Simulations that engage the senses and...
...create an experience of presence within an artificial world”

XBOXIC

Learning Outcomes

- Know the **what**, **why** and **hows** of VEs
- **Critical** thinking and design considerations
- **Understand** how to measure effectiveness
- **Use** principles of good interaction in VEs
- **Know** types and techniques for characters
- **Build** VEs using a range of technologies
(for a full list see wiki page)

Outline

- Part I: Context
- Part II: Immersion
- Part III: Interaction
- Part IV: Special Topics
- Part V: Student Projects

XBOXIC

Classes

- Theoretical talks / Discussions
 - Tuesdays 13:10-14:45
- Technical talks / Demonstrations
 - Wednesdays 12:15-13:55
- Student labs
 - Wednesdays 14:00-15:40

Discussion Prep

- **You** do research **before** the class
- During the class, you share your findings with other students in pairs or small groups and get ready to present a conclusion to the full class
- Sometimes in the form of questions you work on in class and sometimes open discussions

Evaluation

- Discussion, Labs 10%
- Programming assignment 20%
- Final project proposal 5%
- Final programming project 30%
- Final project report 5%
- Final written exam 30%

100%

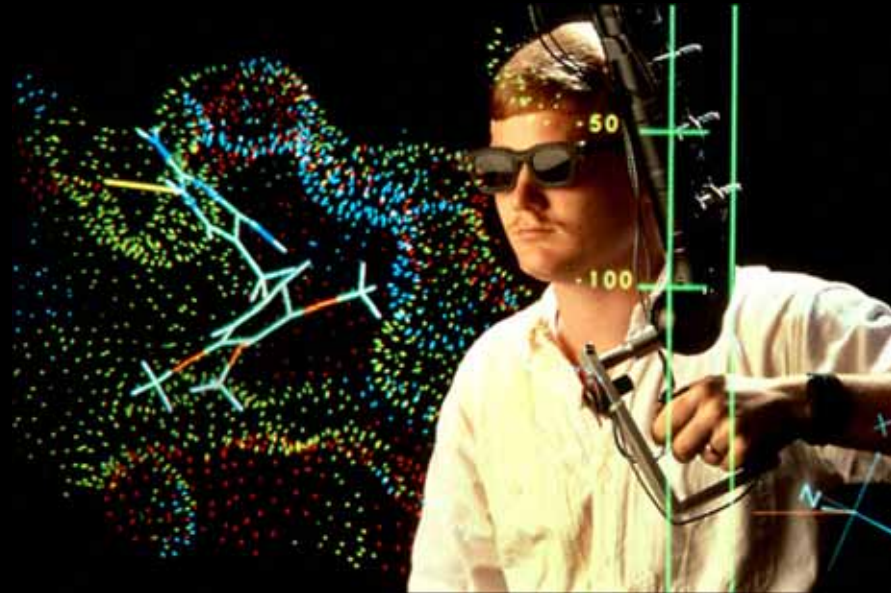
Availability

- In person
after classes
or by appointment (599 6323 or 618 6323)
- Email:
hannes@ru.is
- MSN IM:
skuggavera@hotmail.com



VIRTUAL ENVIRONMENTS

a glimpse



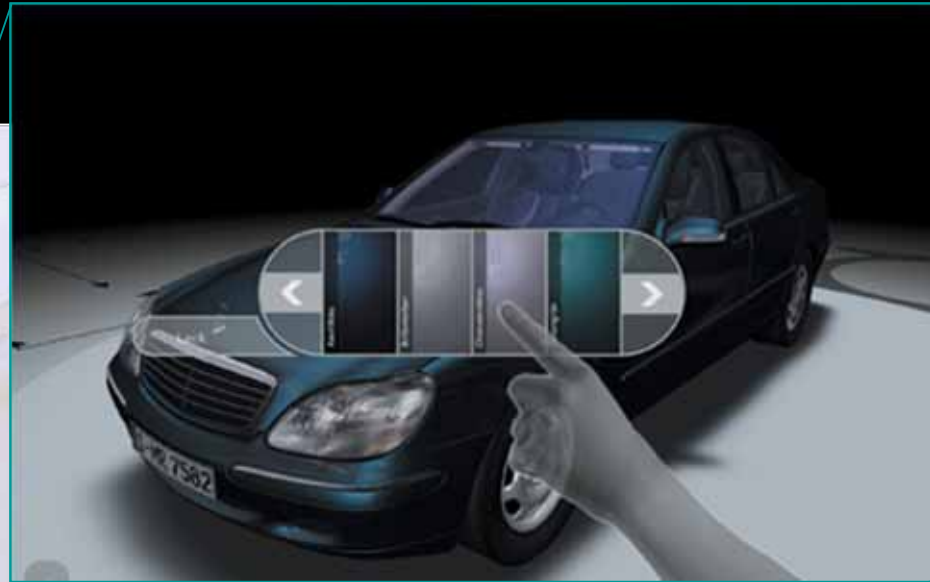
VIRTUAL ENVIRONMENT VIRTUAL REALITY

A VE / VR system is a human-computer interface that provides interactive immersive multisensory 3-D synthetic environments.

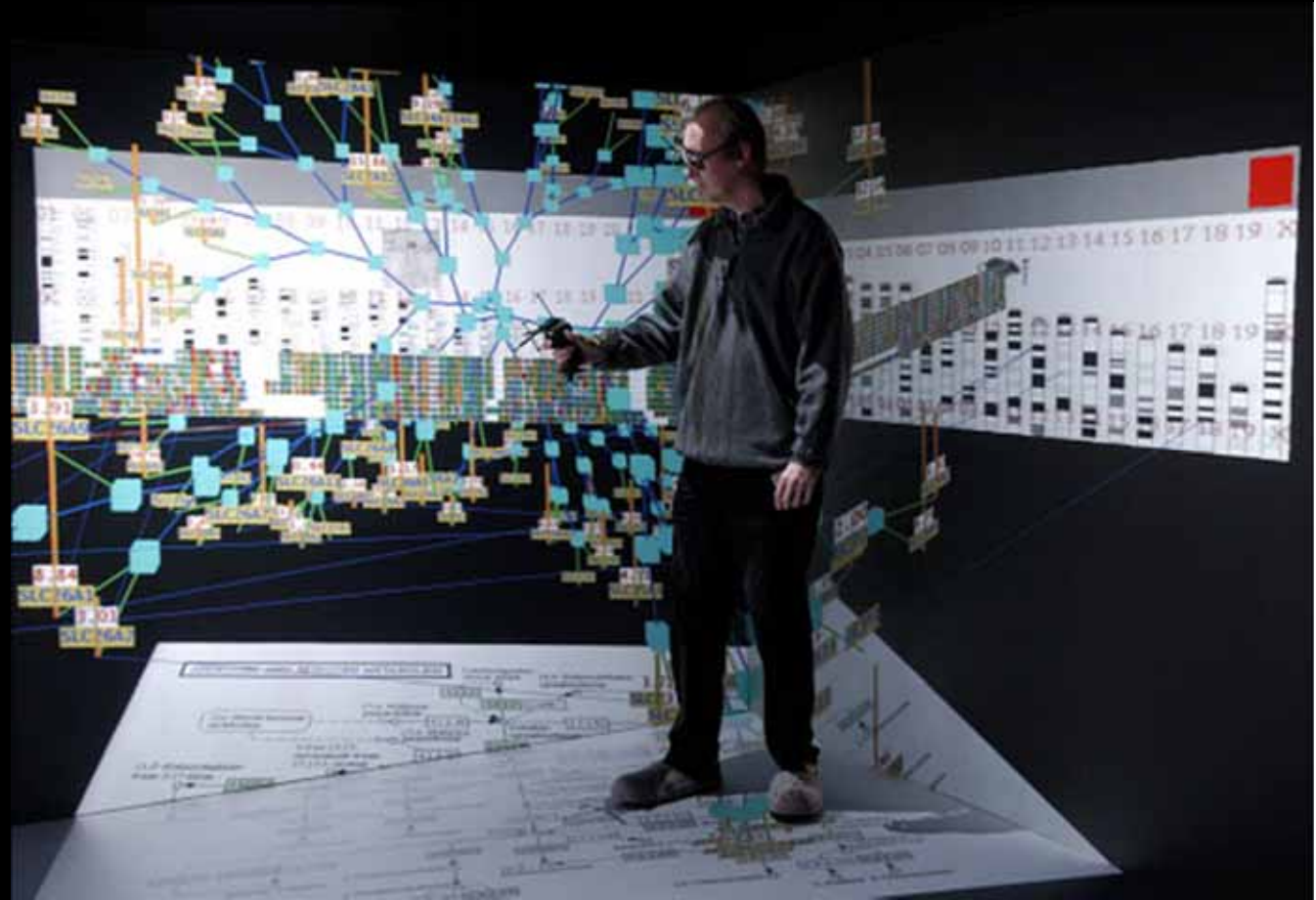
– Rory Stuart, 1993



VIVED, NASA, 1987



VIRTUAL VEHICLE, ART+COM, 1997



VIRTUAL DNA, BARCO, 2005



FLATWORLD, ICT, 2006



CYBERSPHERE, IMC, 2000

mbl.is/Frikki





FS-X, MICROSOFT, 2006



EVE-ONLINE, CCP, 2006



Assassin's Creed, UBISOFT, 2006



Mirror's Edge, DICE, 2008



CYBERSPACE

“A **consensual hallucination** experienced daily by billions legitimate operators, in every nation, by children being taught mathematical concepts...

A **graphic representation of data** abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights, receding...”

– Neuromancer by William Gibson 1984