The Evolution from Virtual Reality (VR) to Virtuality

March 2012
Michael Heim
Contemporary treatments of the virtual - from the *Oxford Handbook of Virtuality* (2012) to the Johns Hopkins *Guide to Digital Media and Textuality* (2012)- are moving away from the term "Virtual Reality" (VR) and replacing it with the term "Virtuality."
This move is more than verbal semantics. The shift suggests an **historical evolution from a visionary technology to one that is normalized** in a wide field of practices. The terminological evolution offers new evidence of how technological models gradually yield to more dispersed and **fragmentary social constructs** as everyday behaviors drive technologies-in-use. This talk describes the evolutionary shift through visual and audio samples.
Evolution from Immersion to Mobility to “Immobility”

From Avatecture in the *Hotel Pro Forma* (2002) to the 2012 Virtual Office

March 2012
Michael Heim
“Virtual Reality” in the 1990s

- Multi-dimensional sensory experience
- Entering the inside of “alternate worlds”
- Differentiating primary and virtual realities
- Debate the opposition of virtual and real
- Six national conferences in Washington DC
Assumptions of the 1990s

- Stable physical site of entry
- Sensory encapsulation
- Technical prostheses
- Multi-actor telepresence via avatars
- Time & space neutralized by net infrastructure
- Sharp boundaries in virtual / real passage
High-End VR

C A V E

H M D
1995 - 2000

CyberForum @ArtCenter (Pasadena, CA)

• Moderated real-time events
• Internationally based avatars
• Coordinated across time zones
• Hosted by a welcoming team
• Customized open events
nomad: Aren't we well beyond the need for clacks or avatars then? [Quoting] IT is 'alive', it talks to you via brainwaves... really, how would you know if a machine has just bacteria and consciousness?
Capture of live CyberForum event
LevM: including flight simulators, Aspen Movie Map, artists works etc.

veturigh: i cannot get the url... why!
Avatar Alcove

In the 1998 Visualization Portal at UCLA, researchers from UCLA, Art Center College of Design, and Southern California Institute of Architecture (SCI-ARC) used the 8-meter immersion screen joined by international guests in real time.
Hotel Pro Forma “The Future Art Building” with PUSH LA architect Christophe Cornubert integrating avatar alcoves into the 40,000 square-meter performance center and international hotel planned for the Ørestad suburb near Copenhagen. Exhibited at the Danish Center for Architecture Gammel Dok in 2003.
Virtuality in 2012

- Multi-dimensional sensory experience, combines phone, photos, IM, text, Net Meeting, variety of mobile controllers
- **Ubiquitous access**, non-site rooted
- **Layering** of virtual and primary actions
- Timed **transitions** between worlds
- **Self-chosen** avatar presence
- **Teamwork** over individual telepresence
- Linguistic / hermeneutic issues
Human-Avatar Identity in Today's Workplace

Some Components of Virtual Teamwork
我们全体FOT美国团队向你们致以衷心的新年祝福。祝你们新年幸福和繁荣。
我们想借此机会说，感谢你们在整个2009年里所有的辛勤工作和支持，并继续在新的一年里取得更大的成功。

Happy Chinese New Year 2010... The year of the Tiger
Wishing you a safe and prosperous New Year
Self-Presentation at “mheim.com”

Books by Michael Heim
translated into Chinese, Japanese, Korean, and Persian

- *Virtual Realism* (Oxford University Press, 1998)
- translation of *The Metaphysical Foundations of Logic* by Martin Heidegger, original title: *Die Metaphysische Anfangsgrunde der Logik im*
Besides, I would like to inform you that I have translated two other books by
the names of: ‘Postmodern Encounters Marshall McLuhan and Virtuality’ by
Christopher Horrocks, and ‘Computer- Mediated communication by Crispin Thurlow.

yes, we have a very nice poems, I am interested in that and sometimes versify.

Please find the attached copy of the book cover and I would appreciate if you
can email me your address, so I can mail you a copy of the book.

Best Regards
Sanvenaz Torbati

2 attachments — Download all attachments   View all images

P2120016.JPG
61K   View   Download

IMG_0001.jpg
1878K   View   Download
Professor Sarvenaz Torbati
Tehran, Iran
Avatar = Self Presentation
Avatar = **Self-Chosen Presentation**
Sample 1

- Visual displays of virtual team
- Microsoft Office Communicator
- Instant Messaging
- Virtual Presence / Absence
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Sample 1

- Virtual team
- **Geography:**
  Los Angeles (California), Cordoba (Argentina), Plano (Texas), Shanghai (China), Pontiac (Michigan), Miami (Florida), Grand Island (New York), Denver (Colorado)
Sample 1

- Virtual team
- **Geography:**
  - Chennai (India), El Segundo (California), Shanghai (China), Denver (Colorado), Miami (Florida), Wuhan (China), Miramar (Florida)
Sample 1

• Virtual team

• **Geography:**
  
  Shelby (Alabama), San Jose (California), Denver (Colorado), Rüsselheim (Germany), Wuhan (China), Mexico City (Mexico), San Diego (California)
Sample 1

• Virtual team

• Geography:
  Denver (Colorado), Compton (California), Prague (Czech Republic), San Francisco (California), Murphy (Texas), Houston (Texas), Plano (Texas), Wuhan (China), Mexico City (Mexico), San Diego (California)
Real-Time Network Constraints

• **ITAR issues: privacy and corporate security**
  – Export laws, foreign nationals
  – *International Traffic in Arms Regulations (ITAR)* is a set of United States government regulations that control the export and import of defense-related articles and services on the United States Munitions List (USML). These regulations implement the provisions of the *Arms Export Control Act (AECA)*, and are described in Title 22 (Foreign Relations), Chapter I (Department of State), Subchapter M of the Code of Federal Regulations. The Department of State interprets and enforces ITAR. Its goal is to safeguard U.S. national security and further U.S. foreign policy objectives.
  – For practical purposes, ITAR regulations dictate that information and material pertaining to defense and military related technologies (for items listed on the U.S. Munitions List) may only be shared with U.S. Persons unless authorization from the Department of State is received or a special exemption is used. U.S. Persons (including organizations) can face heavy fines if they have, without authorization or the use of an exemption, provided foreign (non-US) persons with access to ITAR-protected defense articles, services or technical data.

• **Encryption**, segregation of resources
• **Extraction** (*Inception*) from dream life
Linguistic / Hermeneutic Issues

- Sample 3
- (audio)
Linguistic / Hermeneutic Issues

- Sample 3
- (audio)

- Voices: Los Angeles, Denver, Shanghai
- Shanghai +8
- Los Angeles -8
- Denver -7
- Software team: Los Angeles 6:30 am, Denver 7:30 am, Shanghai 10:30 pm
- Team members at the edges of their daily energies (waking, falling asleep)
- dream-like transactions
- Finding a Virtual Room: beep-beep and robot voice
- Pauses have been removed (sometimes minutes of pauses)
- The Shanghai software engineer is top translator for the China team
- Linguistic fumbling: "By now we might need a new room number!"
Trans-National Calendar

Sample 4

From: Cuy, Laetitia
Sent: Tuesday, February 09, 2010 7:40 PM
To: Bai, Bill (Bill Bai, EB-BAS-China-WH); Bian, Ying (EDS-BAS-China-JI); Cai, Peng; Cao, Cindy; Cao, David; Chen, Aaron; Chen, Ben; Chen, Ian; Chen, Qingsheng (Martin, TSG-GDCQ-WH); Cheng, Roy (Roy, TSG-BAS-China-WH); Cui, Callum; Fu, Dennis; Gao, Jin Song; Guo, Rui (Jerry, TSG-GDCQ-CQ); Hao, Peng-Feng (CHINA-EB-ESSH-SSE); He, Michael; Hu, Jamie; Huang, Linda; Jiang, Amy; Ke, Shan (Midea, TSG-GDCQ-CMEF-Sh); Ling, Nicole; Liu, Ariel; Liu, Xin-Yu (EB-TS-TSD-BJ); Lu, Robin; Lu, Joshi; Ma, Mac; Peng, Ivan; Qin, Xie (Jesse, TSG-BAS-China-CQ); Qu, Chang-Li (Qu, Neil GDAS-CMEF-Sh); Shao, Zi Yi; Shen, Gavin (TSG-BAS-China-Sh); Tao, Tom; Tian, Leon; Tu, Grace; Wang, Bob; Wang, Chris; Wang, Joyce (Channel Operations, FBCC); Wang, Xiao Yu; Wu, Jun; Xi, Kai; Xiang, Guang; Xie, Aaron; Xi, Bo (EB-TS-Sh); Xu, Jan; Yang, Richard; Yang, Shumin; Yang, Terry; Yu, Zilin; Yuan, Fan; Yuan, Michael; Zeng, Tommy; Zhang, Daniel; Zhang, Laurence; Zhang, Michael; Zhang, Yipeng (Yinshun, TSG-BAS-China); Zhao, Feng (Zhao Feng GDCC-CMEF-Sh); Zhao, Jiay; Zhou, Xin; Zhu, Leo; Zhu, Yan; Zou, Yin Fan (Zou Ce, TSG-BAS-China-WH)
Cc: Shurkey, Barry; Perez, David; Anderson, Kim; Antontongiorgi, Aurea; Arnold, Ted; Bhattacharya, Subir; Bower, George; Calvert, Gregory; Colegrove, Matthew; Dennis, Jay; Duhon, Darin; Ehrlich, Dave; Evans, John; Free, Rick; Godfrey, Nicholas; Hall, Kate; Hanlon Blanco, Shirley; Heim, Joanna; Herring, Mary; Hill, Michelle; Lang, David; Lau, Keith; Mari, Sharon; Mcclintock, Kerry; Mchughkins, Don; Meddis, Steven; Murray, Dick; Neer, Tara; Nunez, Richard; Ochhipi, Joe; Osborn, Maureen; Pamp, Steve; Potts, Katie; Rangeen, Carrie; Roche, Brenda; Simm, Paul; Talpalli, Viju; Thanikachalam, Rammohan; Trutt, Laura; Walford, Jimmy; Yao, Yingping; DAS, SANTANU; PURSHOTHAMAN, RAVISHANKAR; SADACOPAN, SRINIVASAN; 'Santosh Iyer'; 'Santosh Kumar S'; Besinque, Kent; Chaban, Katja; Golinar, Tina; Means, Andy; Mears, Melissa; Rangeen, Aziz
Subject: Chinese New Year - 2010, the Year of the Tiger

To our team members celebrating the Chinese New Year, attached is a special card for you. Enjoy the special time.

To our team members copied on this email, the Chinese quotes translate as:

Our entire FOT Team sends you heart-felt new year wishes. Wish you a happy and prosperous new year.

We want to take this opportunity to say, Thank You for all your hard work and support throughout 2009, and continue to have bigger success in the new year.

Hi,

there is a public holiday in Czech Republic on Wednesday, 17th of November. During this Holiday, the TIBCO PS team will be available to on call alarms only.

Thanks,
Petr Horenek
AIRLINE SOA TIBCO PS
Linguistic / Hermeneutic Issues

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- (audio)
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AIRLINE SOA TIBCO PS
“Normal Business Hours...?”

- Sample 5
- (audio)
“Normal Business Hours...?”

- Sample 5
- (audio)
“The notion that man has a body distinct from his soul is to be expunged; this I shall do, by printing in the infernal method, by corrosives, which in Hell are salutary and medicinal, melting apparent surfaces away, and displaying the infinite which was hid.

If the doors of perception were cleansed every thing would appear to man as it is, infinite.

For man has closed himself up, till he sees all things thro’ narrow chinks of his cavern.”

Blake, *The Marriage of Heaven and Hell*
“Newton” by William Blake

Text and paintings of William Blake mock the abstraction of modern science and its inhumane indifference to human suffering....
From Immersion to Immobility?
Thank You!

Email questions to:
mike@mheim.com
Appendix to Avatar Evolution

- Avatars began in the GRID – behind the window
- Avatars went through Looking Glass into the GRID
- Avatar dreams affect the dream of the GRID
- The Dream springs from depths of Human Psyche
- Dreams are semi-conscious elements in the mind-stream
- Dream Exploration can monitor shifts in the shared body-mind
Why Dreams?

• Collective Dreams float through the Mindstream
• Mirrored in Movies like Cameron’s *Avatar*, Nolan’s *Inception*
• Psyche / Technology Connection
  – Robert Romanysyn: Technology as Dream
  – Robert Bosnak: Dream as Technology (Skill)
  – Anthony Korner: Dream as Worldview
Nolan’s *Inception*
Evolution of the Technology Dream

• Descartes’s Dream
• Samuel Edgerton on Linear Perspective
• Romanyszyn on Technology as Dream
• Leon Battista Alberti's *Della pittura*, first modern treatise on the theory of painting, 1435-36, the old and the new order existing side by side
• The GRID (window for detached spectacle)
• The bodiless spectator of science: precision maps, graphs, charts, measurable geometric 3D space
• Bosnak’s counter-move: Spatial feelings in the body
Evolution of the Technology Dream

• **Descartes’s Dream**

• (November 10, 1619, Ulm, Germany)

• **A universal GRID**

• **Measureable reality**

• **Matter as “extended” (measured)**

• **Ego = invisible homunculus**
Descartes’s Universal GRID

Quadrant II
(-, +)

Quadrant I
(+, +)

Positive direction is upward and to the right.

X axis

Quadrant III
(-, -)

Quadrant IV
(+, -)
Descartes’s Universal GRID

$Q(-5, -5, 7)$

$P(3, 0, 5)$

$(0, 0, 0)$ origin
Descartes’s Universal GRID
Descartes’s Universal GRID
Descartes’s Universal GRID
Descartes’s Universal GRID

Single-Zone Structured Grid

This first example is for a very simple 3-D Cartesian grid of size $21 \times 17 \times 9$. The grid points themselves are created using the following FORTRAN code snippet:

```fortran
    do k=1,nk
        do j=1,nj
            do i=1,n1
                x(i,j,k)=float(i-1)
                y(i,j,k)=float(j-1)
                z(i,j,k)=float(k-1)
            enddo
        enddo
    enddo
```

where $n1=21$, $nj=17$, and $nk=9$. A picture of the grid is shown below.

`Simple Cartesian structured grid.`
Edgerton on Linear Perspective
Fig. 2: The *Carta della Catena* (Map with a Chain), Lucantonio delgi Uberti, c. 1480 (Credit: Bildarchiv Preussischer Kulturbesitz/Art Resources, New York).
The panoramic viewpoint begins the era of linear perspective.

Fig. 2: The *Carta della Catena* (Map with a Chain). Lucaantonio delgi Uberti, c. 1480 (Credit: Bildarchiv Preussischer Kulturbesitz/Art Resources, New York).
panoramic viewpoint begins the era of linear perspective

viewer at a distance
Pre-grid experience – viewer is immersed in city’s jumble of walls.

Fig. 1: Panorama of Florence, detail from the Madonna della Misericordia fresco, anonymous, 14th century (Credit: Alinari/Art Resource, New York).
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Romanyszyn: Technology as Dream

- **Collective** cultural style
- Personal **distance** (objectivity)
- **Behind** the Window
- **Looking** dominates **feelings**, smelling, touching, listening
- World becomes **spectacle**
- **Non-involved** default position
- Wanting to **escape** situation
- Infinite **vanishing point**
Fig. 3: Woodcut illustration from Hieronymous Rodler, Eyn schön nützlich Bücher und Underweisung der Kunst des Messens (A Fine, Useful Booklet and Instruction in the Art of Measurement), Simmern, 1531. (Republished by Akademische Druck- und Verlagsanstalt, Graz, Austria, 1970.)
Fig. 4: Woodcut illustration from Albrecht Dürer, *Underweysung der Messung* (Art of Measurement), Nuremberg, 1525 (Credit: Foto Marburg/Art Resource, New York).
Avatar Evolution

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AVATAR
Today’s Avatars: Real-Time Network Constructs

• Telepresence (distance communication)
• IM (simultaneous in real-time)
• Voice (persona, tone, affect, linguistics)
• Shared Desktops (software bridge)
• Mobile access (location floats)
• Face-to-Face option (the face as embodied responsibility)
What do workday dreams reveal about the hybrid future?
Thank You!

Email questions to:
mike@mheim.com