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Stanford University, CA, February 16 - 17, 2008

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Innovations in virtual worlds
Working Papers No. 1

Metaverse U Conference Notes

Stanford University, CA, February 16 - 17, 2008

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Metaverse U web site
<http://metaverse.stanford.edu>

Stanford Humanities Lab
<http://shl.stanford.edu/>

Metaverse U wiki
<http://www.stanford.edu/group/metaverse/cgi-bin/wiki>

Flickr photos
<http://www.flickr.com/photos/tags/metaverse/>

Sciditorium
secondlife://SciLands/244/6/67

Innovation Center Denmark
<http://www.siliconvalley.um.dk/en>

Søren Nedergaard
[Linkedin profile](#)

Eilif Trondsen
[Linkedin profile](#)

H-star
[Application form](#)



The 2008 *Metaverse U* Conference, organized by the *Stanford Humanities Lab*, was a single-track invitational event featuring twelve papers, four conversations, and the screening of a film. The conference was streamed real time in Second Life at the *Sciditorium* in SciLands Sim. The Second Life'ers were able to interact with the conference by submitting questions and comments in writing.

The conference proceedings have been documented by a *web site*, a *wiki* containing conference notes made by participants, *photos* uploaded to Flickr, video clips of talks, as well as interviews with participants uploaded to Youtube (tag: metaverseu), postings in various weblogs (see the conference wiki for references), and more.

Additional information may be found on a variety of web platforms by searching for the conference tag which is "metaverseu".

Three members of the research team participated in the conference: Heidi Hansen, Simon Heilesen, and Sisse Siggaard Jensen. They had been invited by *Innovation Center Denmark*, Silicon Valley, that also co-sponsored the Metaverse U conference.

"The mission of Innovation Center Denmark is to build bridges between research institutions, companies and capital in Denmark and Silicon Valley. To accelerate the entry of Danish companies into Silicon Valley, promote US investments in Denmark, facilitate research cooperation and provide inspiration to help drive innovation in Denmark" (ICD website)

Prior to the conference on February 15, Innovation Center Denmark arranged a series of highly informative meetings for members of the Danish delegation. We were able to meet: Technology & Research Attaché *Søren Nedergaard* and Associate Peter Damgaard Kristensen (Innovation Center Denmark) to learn about the Innovation Center; visiting researcher under the *H-Star* programme, Marianne Stokholm (Aalborg University) to hear about her experiences with the programme, her research, and her experiences of settling in at Stanford. Finally, we met with SRI Director *Eilif Trondsen* to hear about his work as director of the, Virtual-Worlds Consortium for Innovation and Learning.

Also prior to the Metaverse U Conference, on February 15, Stanford Humanities Lab hosted a *Metaverse Roadmap* meeting (Acceleration Studies Foundation). Metaverse Roadmap is a cross-industry public foresight project, and it is one of the key organizations in the development of the "3D Web". Its model of *Metaverse scenarios*, defining Augmented reality, Mirror worlds, Lifelogs and Virtual Worlds, provided a basic frame of reference for the Metaverse U conference.

Metaverse Roadmap
<http://www.metaverseroadmap.org/>

reference for the Metaverse U conference.

The Metaverse Roadmap web site is a particularly rich resource of information on virtual worlds, games, and more. Also, the influential report "Metaverse Roadmap Overview" may be downloaded from the site.

State of the Metaverse

Jerry Paffendorf
[Linkedin profile](#)

The Metaverse U conference opened with a brief summing up of the Stanford Metaverse Roadmap meeting on February 15, presented by futurist *Jerry Paffendorf*.

Destroy Television
[Youtube video](#)

Paffendorf also gave a short presentation of his mixed reality virtual lifelogging/lifecasting project *Destroy Television* in which a robot roams Second Life recording its experiences.

Ginsu Yoon
[Linkedin profile](#)

Ginsu Yoon, Linden Lab, talked about the analogies we tend to make between the World Wide Web and virtual worlds (being particularly useful for business predictions, usage patterns, interoperability, regulation) and between the physical world and virtual worlds (useful for illustrating familiar social and cultural patterns, etc.).

Analogies, Yoon claimed, can be helpful, but they may lead to deductive fallacies of prediction such as:

- "The Muddy Well Fallacy", i.e. understanding virtual world communities in terms of old forms of net based social interaction (MUDs, etc.)
- "The Virtual Weather Fallacy", i.e. taking what is virtual for real.

Tony Parisi
[Linkedin profile](#)

Tony Parisi (Media Machines), set out, tongue in cheek, to define Metaverse 2.0, claiming that there has to be more "web" in 3D web, i.e. that virtual worlds attract quite few users as compared to WWW, and that there is more to virtual worlds than gaming and conferencing.

Internet marketing advertising resources
<http://www.thenetpreneur.com/>

Parisi put forward three concrete proposals for making the metaverse more attractive: (1) It should be made easier to use, (2) it should be easier to produce applications, offering the user a broad choice of inexpensive applications, and (3) filters, search engines and open directories should be developed.

Life in the age of the Metaverse

Mike Liebhold
[work home page](#)

Futurist, *Mike Liebhold* (Institute of the Future), gave an enthusiastic and wide-ranging presentation of augmented reality and the geospatial web, discussing space in terms of geoweb data interoperability, position sensing, and interoperability of identity.

Nokia Mara project
<http://research.nokia.com/research/projects/mara>

[research/projects/mara](#)

WhereCamp
<http://wherecamp.crowdvine.com/>

Christian Renaud
[Linked profile](#)

Byron Reeves
[work home page](#)

Reuben Steiger
[Linkedin profile](#)

Millions of Us
<http://www.millionsofus.com/>

Raph Koster
[Linkedin profile](#)

Cory Ondrejka
[Linkedin profile](#)

Howard Rheingold
<http://www.rheingold.com/>

He pointed out that we are immersed in data as we move around in physical space, and that this data can be made visible and put to good use in various augmented reality applications, one of which, involving mobile technology, is represented by Nokia's *Mara* project.

ML also recommended the *WhereCamp* conference 2008 as a creative meeting place for "premier crowd of hackers".

Christian Renaud (Cisco), *Byron Reeves* (Stanford University), and *Reuben Steiger* (*Millions of Us*) discussed the workplace in the age of CMC and virtual worlds. Some of the topics were quite familiar, such as the "out-of-sight, out-of mind" problems in distance work. Others, like simulated physical interaction (en lieu of video-conferencing) were intriguing, and they anticipated some of the other papers dealing with efforts to introduce non-verbal communication into virtual worlds.



In a lively session *Raph Koster*, *Cory Ondrejka*, and *Howard Rheingold* discussed several issues of virtual world culture: privacy, regulation, rights of avatars, the creation of social capital in virtual worlds, technological elitism, adoption of new technologies and the creation, viability and culture of communities.

The Second Life streaming of the session was projected on the rear wall of the auditorium, creating an interesting situation where the first life participants were watching the Second Life participants watching the first life participants. The situation aptly illustrated the issue of privacy, as the Second Life participants, freely exchanging rather frank observations on, among other things, the personal appearance of the panel, were outraged when they discovered that the three gentlemen as well as the whole auditorium actually were able to follow this meta conversation.

T.L. Taylor
[IT-U homepage](#)

T.L. Taylor (IT-University, Copenhagen) discussed online embodiment in game worlds and social worlds, pointing out that some connection exists between the corporeal and the digital body. Users have different notions about avatars, ranging from "navigational device" to a "reflection of oneself" or even a "truer (than life) reflection of oneself". Avatars may even take on some kind of individual existence; and they are defined socially in the virtual world as they act in different contexts and social settings. These interactions inscribe them with meaning, as does the visual design of the avatar, visual signals being one of the powerful means of non-verbal communication in virtual worlds. Taylor noted that just as in real life, "bodies" can be more or less privileged in virtual worlds and that this affects social understanding as well as the user's understanding of herself.

In her conclusion, Taylor drew attention to both the increasing commercialization of embodiment and to the issues of intellectual property rights in terms of ownership of avatars.

Beth Coleman
[MIT homepage](#)

Beth Coleman (MIT) made two statements about ubiquitous computing and augmented reality:

1. Augmented reality is related to issues of interoperability. Coleman sees a need for portals connecting our interactions in real time. And increasingly users seem to demand interoperability.
2. Augmented reality and mirror worlds affect the real world. Coleman gave a number of examples, including Google Maps/Earth evidence of infringements in the Israeli-Palestinian conflict.

Rebecca Moore
[Linkedin profile](#)

Jeffrey Schnapp
[Linkedin profile](#)

Wagner James Au
[home page](#)

NAIL
http://earth.google.com/outreach/cs_nail.html

Appalachian Mountaintop Removal
http://earth.google.com/outreach/kml_entry.html#tAppalachian%20Mountaintop%20Removal

Google Outreach
<http://earth.google.com/outreach>

The conversation between *Rebecca Moore* (Google Outreach), *Jeffrey Schnapp* (Stanford), and *Wagner James Au* (formerly embedded journalist in Second Life) became dominated by Moore's constant demonstrations throughout the session of various Google Earth applications.

Two of these demos, discussed in some detail, illustrated how Google Earth has been used in environmental activism: *Neighbors Against Irresponsible Logging (NAIL)*, and the *Appalachian Mountaintop Removal*. Many more cases representing a wide variety of domains can be found at the *Google Outreach* web site.

Wagner James Au noted that political activism has also been evident in virtual Worlds, e.g. in a Second Life Darfur-space. He contributed to the discussion also by describing the evolution of Second Life business models – from pay site to free site. A key event in Second Life history was the "tea crate rebellion" against "mad king linden" which ended all attempts to make users pay for doing their own development work.

Jeffrey Schnapp commented that complex visualizations are very powerful tools, and that the storytelling capabilities of

visualizations and virtual worlds should be explored more as a means of enhancing first life communication.

Molotov Alva
<http://www.molotovalva.com/>

At the end of the first day of the conference, filmmaker Douglas Gayeton briefly introduced his film *Molotov Alva and His Search for the Creator: A Second Life Odyssey*. This is series of episodes on the timeless theme of the quest for understanding the great design of life – or, in this case, virtual life.

The film has been produced using only second life avatars, and the technical solution has consisted in simply shooting the action on the computer screen with a high quality camera.

Archiving virtual worlds

Kari Kraus
[UMD homepage](#)

Anima, Second Life novel
<http://www.digitalku.com/anima/>

Agrippa
<http://www.williamgibsonbooks.com/source/source.asp>

Kari Kraus (University of Maryland) talked about the possibilities for archiving virtual world products, especially those with artistic or literary qualities. She provided several interesting examples, e.g. the Second Life novel *Anima*. The obstacles for preserving our digital legacy are considerable. Thus,

- The system of scholarly citations does not suffice,
- intellectual property laws regulate first life, where as contract law regulates virtual worlds,
- we tend to link to (reference) locations rather than objects.

Copying is essential to preserving our digital legacy, and therefore we need to reconsider our attitude to copying. At the moment, the legacy is as much in the hands of pirates as in the hands of librarians.

An apt comment on the issue of copying is William Gibsons poem *Agrippa*, that self-destructs when read.

Waybackmachine
<http://www.archive.org>

Henry Lowood
[Linkedin profile](#)

Brewster Kahle, the creator of the *Waybackmachine*, and Stanford curator Henry Lowood discussed archiving. With its static pages, the web can be archived fairly easily, somewhat in the way that documents can be archived in a library. And the *Waybackmachine* archives what amounts to a Library of Congress – every month.

Archiving virtual worlds, on the other hand, involves major problems, both in terms of (lack of) standards, the immense complexity of the task, and the legal questions involved. A few sites in Second Life are in fact being archived on a regular basis. But the question is whether activities in virtual world environments, have the intrinsic value justifying archiving. – For example, will it be interesting 30 years from now to be able to go back in time and live in a virtual world Anno 2008? We may not think so today, but then, when Kahle started archiving the internet, many considered internet content to be largely trivial stuff or even outright trash.

The complexity of legal issues, "who owns what", were illustrated by machinima, that remix identities and objects.

Projects and Applications

Vladlen Koltun
[work home page](#)

Virtual Worlds Group
<http://vw.stanford.edu>

Dryad overview
<http://cs.stanford.edu/research/spotlight?page=1>

Vladlen Koltun, Stanford Virtual Worlds Group, introduced the *Dryad* tool by first discussing design space likening it to Borges story of the "Library of Babel", the resources of which were infinite and yet useless.

Dryad is a tool for designing virtual trees in 98 dimensions. It is also a fascinating tool for collaborative design space exploration. The application is free to download, and each time a user builds a tree, information is added to a database, creating patterns of "good" trees in the universe of possible trees – basically an AI-approach applied to design.

Jon Brouchoud
[Linkedin profile](#)

Studio Wikitecture
<http://studiowikitecture.wordpress.com/>

Architect Jon Brouchoud introduced *Studio Wikitecture*, a platform for collaborative architectural design using a Building Information Model (BIM) that furthers integrated practices.

Studio Wikitecture combines in a truly innovative and highly attractive way collaborative design in Second Life, 3D wiki technology, and more "conventional" web applications.

Brouchard described a couple of Wikitecture projects, the latest of which is the collaborate design for a health clinic in Nepal.

Jeremy Bailenson
[Linkedin profile](#)

Virtual Human
Interaction Lab
<http://vhil.stanford.edu/>

In one of the nine experiments covered in his talk, *Jeremy Bailenson* of the *Virtual Human Interaction Lab* confirmed from a natural science point of view Taylor's observation that the visual design of avatars is important for constructing the self on screen as well as in first life. Apparently, having an attractive avatar may boost the self-confidence of the user.

All the experiments mentioned have to do with various forms of digital representation of the self. Some of the other experiments described dealt with:

Augmented gaze, i.e. the ability to gaze at several avatars at the same time. This is experienced as a "real" gaze, and users seem to uncomfortable with being gazed at constantly.

Sharing body spaces, experienced as aggression in real life, is effective for training movements in an online world.

Mirroring, i.e. mimicking the body language of another person. This is a powerful means of expression in the physical world, and it works in an equally positive way when the users body language is mapped on to an avatar.

Facial identity capture. Bailenson also described an experiment in morphing images of the user and a given public figure, resulting in

the latter being viewed more favourably. The experiment has been met with some incredulity, but it has been verified repeatedly.

Transforming social perception, i.e. training teachers (in an avatar world) to spread their gaze equally on the premise that learning increases when students have eye contact with the teacher.

Gavin Longhurst

[Linkedin profile](#)

Seeingmachines

<http://www.seeingmachines.com>

[.seeingmachines.com](http://www.seeingmachines.com)

Daniel Huebner had to cancel. Instead two short presentations were made by Gavin Longhurst and a professor from University of Southern California.

Gavin Longhurst, *Seeingmachines*, presented a hands-on demonstration of a robust system for face tracking. It records facial expression, gaze direction and also head movement at up to 90°.

The USC professor gave an overview of methods and technologies used in a large and complex quantitative study on social and civic aspects of virtual worlds. The data base, Virtual Worlds Exploratorium Data Bank is hosted by NCSA, University of Illinois.

Parvati Dev

[Personal homepage](#)

Wm. LeRoy Heinrichs

[Linkedin profile](#)

Parvati Dev (Innovation in Learning) & *Wm. LeRoy Heinrichs* (Stanford University) demonstrated the use of mirror worlds and Virtual Worlds role playing in the training of doctors and nurses to handle stressful situations in busy emergency wards where a delay of a few minutes may result in the death of a patient, and where quick decisions have to be made on order of priority for treating seriously injured patients.

The simulations have shown to be no less effective in terms of training than the conventional use of mannequins.

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