

## **3D INTERNET – A Survey**

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### **ABSTRACT:**

*The topic 3D Internet in Web 3.0 is one of the form of 3D. Now we are using 2D internet instead of 3D and here by 3D Internet helps in achieving that. Virtual world is the another name given for 3D net it is a powerful new way for you to reach consumers, business customers, co-workers, partners, and students.3D internet will dominate the entire future. It uses the combination of the immediacy of television, the versatile content, and also the relationship-building strengths of social networking sites. Unlike the traditional old passive experience of television, the 3D Internet is inherently interactive and engaging and also entertainable. A resource that implements 3Dinternet is second life and it seeks its applications . It's been a great success in USA after the development and it will increase the network usage to a greater extent and also it paves way for rapid development*

### **I INTRODUCTION**

Virtual worlds is another name for 3D internet, is a very powerful and also new way for you to reach consumers, business customers, co-workers, partners, and various community people. It uses the combination of immediacy , the versatile content and the relationship-building strengths these 3 are used.3D internet opens the door for better and improved communication Yet unlike the experience of television, the 3D Internet is inherently interactive and engaging and also highly interactive one. It provides an incomparable 3D experiences that replicate real life scenarios.

People who take part in virtual worlds stay online for a longer with a heightened level of interest and passion.In order take advantage of that interest, the various businesses and organizations have claimed an beginning stage in this fast-growing large market which has greater scope. It need a very good network for improved communication\*They include technology leaders such as \*IBM, \*Microsoft, and \*Cisco, companies such as \*BMW, \*Toyota, \*Circuit City, \*Coca Cola, and many other popular famous organizations.

Second life is the 40 platforms for 3D internet. It's "in-world" residents' number in the millions. As residents, they can:

- Ø Remotely attend group meetings and educational classes
- Ø Engage in lot of corporate or community events
- Ø View and manipulate statistical information and other data such as biological or chemical processes in three dimensions and also in improved manner
- Ø Try out new products and electronic devices
- Ø Take part in improved virtual commerce
- Ø Participate in brand experiences that carry over to the real world



**Fig 1: 3D Internet**

## **II EVOLUTION**

### **A. WEB 1.0**

The people consume content will be published by various companies (e.g. CNN). Web 1.0, consists of a few number of writers created Web pages that are used by large number of readers. As a great output of this we can directly go to the source for what we are looking for it: for eg: Adobe.com for graphic design issues and also Microsoft.com for Windows issues, and CNN.com for various news. As personal publishing caught on and went mainstream and also it became apparent that the Web 1.0 paradigm had to change to the changing environment. This is simple and easy to implement

### **B. WEB 2.0**

The contents are published by the people so that other people can consume, companies build platforms that let people publish content for other people also for e.g. considering Flickr, YouTube, Ad sense, Wikipedia, Blogger, MySpace, RSS, Digg. Web 2.0 sites are often highly user interactive environments based on Ajax, OpenLaszlo, Flex or similar rich media. It has become popular mainly because of its high look, and use of the best graphical user interfaces providing more sophisticated user environment. This is the advanced model compared with web 1.0

### **C. WEB 3.0**

With Web 3.0 applications we will be able to see how the data being integrated and also how it is applied in innovative ways that was never possible before. From amazon's image taking technique and integrating it with data from the Google and then building a site that would define your shopping experience based on a combination of Google Trends and New Products. This is just a random (possibly horrible) example of what Web 3.0 applications will harness. this is one of the advanced model. The main aim of this is at integrating various electrical and electronic devices to the internet these various devices include mobile phones, fridges, four wheelers like cars, etc. One of the major leap in this is the introduction of the 3D Internet into the web and hence these would replace the existing *Webpages* with the *web places*.

### **D. WEB 4.0**

It is really not a new version but is actually another form of what we have today but it has certain more facilities and advantages. This provide a sophisticated user environment. Web needed to adopt to its mobile surroundings. It connects all devices in real and virtual world in real time.

## **E. WEB 5.0**

Web 5.0 is in developing mode so far and the true shape of this is still forming upto the date, initial signals that are in that Web 5.0 will be about a linked web which communicates with us like we communicate with each other just like as our personal assistant. This is in developing stage and may come to use within few years. Web 5.0 is called “Symbiotic Web”. This Web will be very powerful and execute everything. Web5.0 will be the read-write-execution-concurrency web.

## **III 3D INTERNET**

### **A. WHY 3D INTERNET?**

The most common heard arguments against the 3D Internet is in the form of the question “why do we need it?” For many of its users the Internet is a familiar, sophisticated medium where we communicate with each other, get our news, shop, pay our bills, and perform various our day to day tasks. And it also Provides a new experience. We are indeed so much used to and dependend on its existence that we don’t think about its nature anymore just like we do not think about Ohm’s law when we turn on the lights. From this perspective what we have, i.e. we can say that 2D is more sufficient and the 3D Internet is yet another fad. But actually if we stop and think about the nature of the Internet for a moment we come to conclusion that it is nothing but a virtual environment where various people and multiple organizations interact with each other and exchange the information which they contain that is the reason 3D internet is needed. When we understand this the question can be turned on its head and becomes “why do we restrict ourselves to 2D pages and hyperlinks for all these activities? Instead of moving to advancements” Navigating hierarchical data structures is often cumbersome for large data sets. Unfortunately, the Internet as Within the website, at every level of the interaction, the developers have to provide the user navigational help.

Otherwise, theuser would get lost as soon as or later. Since this is a very fast environment, there is no direct way of providing a navigation scheme which would be immediately recognizable to human beings. The situation is not any better when moving between websites. Given the current situation the term web surfing is rather appropriate as we don’t have control over where the web takes us with the next click. Various experiments are done while developing 3D internet. Another problem is the emergence of search engines as a fundamental element of the Internet. It is no surprise that Google is the most powerful Internet company of our generation. There is actually a much better alternative way of arranging data which everybody knows and uses. We spendour lives in a 3D world navigating between places and arranging objects spatially.We rarely need search engines to find what we are looking for and our brains are naturally adept at remembering spatial relationships.

We are living like 2D creatures living on flat documents not knowing where we are or what is next to us. We transfer constantly from one flat surface to another, each time getting lost, each time asking for directions or help.In contrast, the interest of use and intuitiveness of 3D GUIs are an immediate consequence of the way our brains work, a result of a long evolutionary process ensuring adaptation to our world. Although the 3D Internet is not solution to all problems, it provides an HCI framework that can reduce mental load and open doors to rich, innovative interface designs through spatial relationships. Another important point is the Web place metaphore of the 3D Internet which enables interaction between people in a natural way. In this sense, the 3D Internet can be seen as a natural successor of Web 2.0.3D internet a combination of graphics and internet. The metaverses such as SL can be considered as pioneering precursors of the 3D Internet. Yet, they already indicate its significant business opportunities. Not only existing online businesses would give from the inherent interactive nature and spatial HCI paradigms of the 3D Internet but also a whole range of businesses such as fashion, real estate, and tourism can finally start using the Internet connection effectively. We expect that the given of providing faithful 3D representations of products and services will have revolutionary effects on online business to business and business to customer commercial activity.

## B. WHAT IS 3D INTERNET?

We are in great honour in presenting and discussing a 3D Internet architecture as an illustrative example. It will be in normal use within few years. This shares the time-tested main principles and also as well as underlying architecture of the current Internet as well as many semantic web concepts these are used in development. Thus the various operational principles the 3D Internet shares with its predecessor including the open and flexible architecture and also the open protocols as well as simplicity at the network core even intelligence at the edges, and distributed implementation. The non-complex graphical depiction of the proposed 3D Internet architecture is provided in the diagram for better understand. We adopt here the terms universe, world, and web place as 3D counterparts of WWW, website, and sub domain, respectively. We describe each component's functionality briefly below:

➤ **WORLD SERVERS:** provide user- or server-side created, static and dynamic content making up the specific web place(3D environment) including visuals, physics engine, avatardata, media, and more to client programs. A world server has the important task of coordinating the co-existence of connected users, initiating communication between them, and ensuring in-world consistency in real time. They facilitate various services such as e-mail, instant messaging and more. Performance is increased by several times.

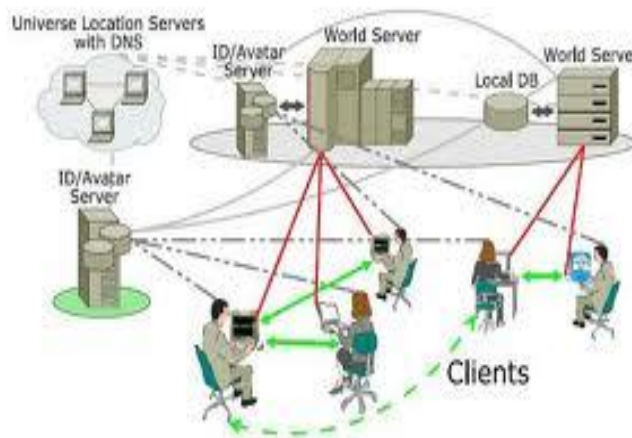


Figure 1. A graphical depiction of the proposed 3D Internet architecture.

➤ **AVATAR/ID SERVERS:** virtual identity management systems containing identity and avatar information as well as inventory (not only in world graphics but also documents, pictures, e-mails, etc.) of registered users and providing these to individual world servers and relevant client programs (owner, owner's friends) while ensuring privacy and security of stored information. Avatar/ID servers can be part of world servers. 3D internet plays a vital role in avatar services

➤ **UNIVERSE-LOCATION SERVERS:** virtual location management systems similar to and including current DNS providing virtual geographical information as well as connection to the Internet via methods similar to SLurl. They also act as distributed directory of the world, avatar servers and users. This is done possible by connecting location servers.

➤ **CLIENTS:** browser-like viewer programs running on users' computers with extensive networking, caching, and 3D rendering capabilities. Additional components of the 3D Internet include web places and 3D object creation/editing software, i.e. easy-to-use 3D modeling and design programs such as Sketch-Up and standardized mark-up languages and communication protocols. Emergence of new software and tools in addition to the ones mentioned can be expected. Provides better user environment

## **IV WORKING**

### **A NETWORKING AND DISTRIBUTED COMPUTING**

The conventional approach of web caching will not be adequate for satisfying the needs of the 3D Internet environment consisting of 3D worlds, which may be hosted on different servers. One challenge arises from the fact that the avatars contain significantly more information about the user who is visiting a 3D world than cookies do about a 2D web site visitor. For instance, avatars contain information about appearance (e.g. height, clothing) and behavior (e.g. visible, open for conversation). As avatars tend to move between worlds, caching will be needed in server-to-server interactions to enable fast and responsive transition between worlds. This will be intensified when changing world by avatars carrying objects (e.g. a bicycle) or virtual companions (e.g. a virtual dog) with them, which requires the transfer of large volumes of information in a short time.

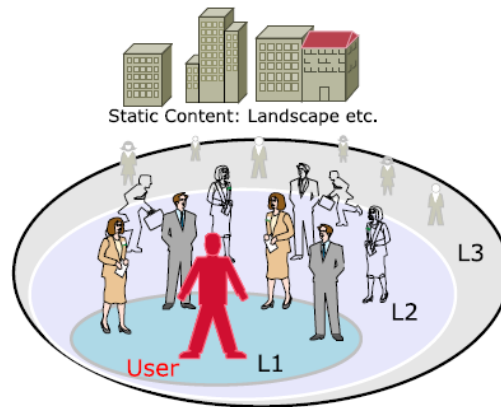
Another challenge is related to the fact that some virtual objects or companions are essentially running programs. They have snippet that defines how they react to certain inputs, and they have a partly autonomous behavior. Thus, when an avatar moves to a world, the world server (or servers) needs to execute the corresponding code. This raises a number of research problems: how to safely run untrusted code for instance, when the virtual companions are user-generated and custom built? How will the economy of such transactions be handled? How to move running code between world servers without fatally disrupting its execution? Platforms should allow the dynamic deployment of potentially untrusted computation at globally dispersed servers, in a fast, secure and accountable manner [6].

### **B. LATENCY MINIMIZATION**

As the 3D Internet increases the reliability on graphics and interactivity, it will be crucial that the latency that clients notice while interacting with servers is minimized. It is known from existing implementations such as SL that high latency provides low responsiveness and reduced user satisfaction. Hence, the network has to be developed intelligently to overcome these challenges. We can use hybrid peer-to-peer (P2P) approach to reduce server load and ensure scalability of the 3D Internet infrastructure. It consists of three types of communications: client to server (C2S), server to server (S2S) and client to client (C2C) each with different latency and bandwidth requirements. C2S communications bandwidth limited, frequently updated, and asynchronous. Location and use of in-world services will spend substantial amount of resources for both client and world servers. The avatar/ID server-client C2S communications are less frequent and asynchronous. As an optimization, some portion of this communications can be moved to the backbone by facilitating S2S links between ID and world servers (solid gray lines) triggered by clients and through intelligent caching.

## **V SECURITY AND TRUST**

There are tons and tons of alternatives for enabling the seamless & transparent authentication of users, also avatars, and even other objects in the 3D Internet world ensuring better performance. The Single Sign On concept that gives the users logging in only once, just consider the scenario on a web page of an on-line service, and visiting further services or web-based applications without the need to log in again it provides a highly secured environment. Thus user can experience an unhindered and seamless usage of services this could increase efficiency. The important main concept behind Single Sign On is federation is denoting the establishment of common references between accounts or identities in different repositories or even the services. The important Microsoft Passport<sup>1</sup> and even several other systems that have been developed based on this concept which functions to the expected level. Earlier on, role based access control which had been devised to allow authentication not based on user identities alone apart from that rather



**Fig:1.b. A P2P communication scheme on a world in the 3d internet.**

It is based on the class in which they do belong to. The studies [5,8] are closer to the 3D Internet paradigm as they focus on challenges imposed by applying RBAC to open, largescale systems. Attribute-based access control makes access control decisions based on user attributes which ensures highly secured environment and their combinations, allowing more fine-grained access control ensuring control over what we do. These control specifications driven by the users' growing privacy concerns regarding the handling of their authentication information ensuring secured privacy, user-centric identity management approaches such as CardSpace2 have recently gained popularity. These go beyond the federation concepts that to allow individual users to retain full control over their own identity management their privacy is under their control, without requiring the presence of an external provider.

#### **A. INTELLIGENT ENVIRONMENTS**

Among the various emerging fields such as ubiquitous computing and ambient intelligence draw heavily from adaptive algorithms and intelligent algorithms they are useful in lot ways. They are concerned within the field of computing and networking technology which is unobtrusively embedded in the everyday environment of various users. The various emphasis of the intelligent environments is on user-friendliness, efficient and also distributed services support, along with user empowerment, and also support for human interactions. All this assumes a dramatic and grand shift away from desktop or portable computers to a variety of devices accessible via intelligent interfaces this would result in new era.

#### **B. INTELLIGENT SERVICES**

In the scenario of 3D Internet, the concept of intelligent environments extends to underlying communication protocols naturally to a greater extend and enabling services as well as to user centered Services provide better performance. Given that it is its inherent P2P nature, it can make use of paradigms like the intelligent routing where mechanisms being aware of the network topology along with the information structure that allow for flexible also context-dependent distribution of traffic . As in the real world, one could think of adaptive algorithms that control traffic flow depending on the time of day, user-behavior patterns, or a variety of global and local events. Since the 3D Internet provides an environment that closely resembles the physical world and can project the actual virtual world, it calls for intelligent interfaces that extend the conventional desktop metaphors such as menus and sliders. These includes various speech- and gesture recognition, but this also implies the various interactions with virtual objects and tools inspired by things existing in the real world. Learning and ambient intelligence on this level will then have to be concerned with typical usage patterns, anticipations of user activities, and convincing simulations. In case of the user-centered services, it is not tough to imagine applications of machine learning that would facilitate social interaction of users as well as increase usability of core functionalities along with better performances of the virtual environments on the 3D Internet.

As per on the given user provided ratings or an analysis of typical usage of various patterns and even goal directed, also intelligent searches [3] and various recommendations are possible to the next level. This of course facilitates personalization of individual users avatars helps to identify the uniqueness

### **C. INTELLIGENT AGENTS AND RENDERING**

It is our duty to increase the users' acceptance of services like the ones just mentioned, they will not just have to be personalized alone but also be presented and also should be accessible in a way users will consider natural. This leads to the problem of modeling artificial agents and avatars [10] that act life-like and show a behavior that would be considered natural and human-like. As a First attempts in this direction have already been made in the context of computer games by various organizations.

The network traffic generated by a group of people Just consider the scenario of playing a multiplayer game contains all the data necessary to describe their activities in the virtual game world to satisfy the gaming needs. These kind of statistical analysis of this traffic and also a derivation of a generative model there from allows for implementing agents that are perceived to act more human-like comparatively provide better performance. Thus these suggested approaches can be applied to improve on the quality of virtual clerks and information personnel in order to improve performance.

## **VI TECHNICAL IMPLICATIONS AND SOLUTIONS**

### **A. IMPLICATIONS**

#### **➤ SPEED:**

Internet speed is one of the most significant and also the most basic implications that are being faced by the 3D Internet in various parts of the world. A research that has conducted in many parts of the world clearly shows that not many countries in the world are in a state to fulfill the internet speeds that are required for the implementation of the 3D Internet this will create a backlog in 3D since high speed internet is very essential.

#### **➤ HARDWARE:**

These kind of various implications in the field of hardware are not quite serious implications to be thought of, because the main Hardware implication that we face to implement the 3D Internet is that the display device used to display the images are 2D in nature we have to convert the 2D into 3D this is the task, but with the inclusion of the 3D internet there would be great difficulty to view the 3D objects in the 2D devices and lot of concentration is needed in this domain.

### **B. SOLUTIONS**

#### **➤ SPEED**

The currently widely used 3G is the *third generation* of tele standards and technology for mobile networking with increased capacity. These 3G networks are wide-area cellular telephone networks available provided that are evolved to incorporate high-speed Internet access and video telephony. We could possibly expect that 3G will provide higher transmission rates: a minimum speed of 3Mbit/s and maximum of 15.4Mbit/s for stationary users, and 348 kbit/s in a moving vehicle without interruption. Hence, with the introduction of the 3G technology, the speed implications involved with the 3D Internet would be solved in the near future.

#### **➤ HARDWARE**

3D goggles is usage could be considered as the solution that can be employed to overcome the problem of the Hardware implications. 3D goggles available in the market in wide variety of ranges, we could be able to select from these wide variety of 3D goggles. The cost of these goggles is even not too much and comparatively low, so this prospect we could consider this in the preliminary stages of the 3D Internet, these could be upgraded with the latest technologies in the upcoming years which could be used to implement/ display the 3D data.

Use of Vision Station as a monitor / display for the 3D Internet, Vision Station is a computer display technology developed by Elumens that provides 180 degrees of viewing angle for its users. Current computer screens have at most a 50-degree field of view and needs the user to move the controller in order to see the images that are not on the screen. This motion seems to be not natural because in the real world, users use their peripheral vision to see things beyond the direct line of sight. Thus kind of new display technology will address this limitation of standard computer monitors improve the quality.



**Fig 2: 3D goggles**

### **C. OBSTACLES TO COMMERCIAL SUCCESS IN 3D INTERNET**

Advertisers along with various marketers and organizations have yet to capitalize on the vast and various potential of the 3D Internet. Factors inhibiting the commercial usability of virtual worlds include are:

Thus the various limited effectiveness of traditional and old media techniques such as fixed-location billboards when applied to virtual worlds. In case of the 3D Internet, participants have complete control over where they go and what they do — and can move their avatars instantly through virtual space they can have an overall control of what they do. The requirements are a means for making content readily available to people not only at specific points enable fast service, but throughout virtual worlds.

Another defect is that absence of best way for enabling people in virtual worlds to encounter commercial content that enhances their virtual experience to the greater levels.

Another inconsistent means for enabling in-world participants to easily interact with and access video, rich multimedia, and Web content all the defects could be resolved with the developing technologies.

## **VII APPLICATIONS OF 3D INTERNET**

### **A. 3DXPLORER:**

3DXplorer is an online platform for designing interactive 3D spaces such as 3D rooms and virtual worlds including 3D objects, in which web visitors can meet, collaborate, talk, chat, walk, visualize objects that interact as easily as they navigate through HTML pages and various sources, but in a 3D immersive mode. Targeted to a wide range of users including but not limited to teachers, learners, marketers, managers, employees, creators, web designers, webmasters and application developers. 3DXplorer enables creating 3D content which can be visited with a simple web browser.

#### **➤ COMPONENTS:**

- 1.3DXplorer Studio
- 2.3DXplorer Avatar Configurator
- 3.3DXplorer player

### **B. CHARACTERISTICS:**

- Enterprise friendly: can be used inside enterprise firewalls, does not require any open port
- Browser-based: accessible to all, can be embedded inside any web page
- Plug-in-less: No software to install



- Java-based (Java 5 and above, Java 6 recommended).
- Runs on any computer: PCs running Windows and Linux, Mac
- Runs with any popular browser: Internet Explorer, Firefox, Safari, Opera
- Open for importing custom User-Generated 3D Content, objects or scenes: 3DS, COLLADA from any modeler including Autodesk's 3DSMax, Maya, Revit, Inventor, Google's Sketchup, and also LightWave 3D, Softimage, Blender, Houdini, Rhino...
- Customized 3D scenes with imported images and sounds audio, changing colors and materials, adding hyperlinks, and more...
- Collaboration: Present in 3D, collaborate, Meet in 3D, work together thanks to the Online Meeting features
- Secure: Password protect any world
- Programmable: API supporting JavaScript, PHP, HTML
- Web-native and open modeling environment, accepting user-generated content via standard 3D formats (3ds, COLLADA)

100% Online platform – SaaS (software as a service) composed of a studio (development environment) , an avatar configurator tool and a player (used by visitors).

### C. AVATAR CREATION:

With V4 any 3D world can now be “avatar enabled” allowing multiple visitors to explore and interact in real-time with avatars on any computer and browser. Visitors are now able to define their “universal avatar” once and enter any virtual world, 3D web site or casual game with the same avatar or personality.

They do support a variety of animated actions also moods and interactions with other avatars,they include walking, running, head shakes for yes and no, handshakes, hugs, laughing, yawning, dancing and more.

Along choosing to avatars enabling, we can limit the number of avatars which may enter a world and also as well as protecting worlds with a password. avatars can be newly created with a free avatar creation kit that includes various guidelines for new avatars, as well as 3ds Max models of standard avatar skeletons providing more easy access.



Fig:7.1.3 avatar configurator

Two avatar categories: 1) high resolution VIP avatars, typically used for presenters;

2) low resolution Guest avatars, typically used for guests attending large conferences create, customize and save personalized looks for easy visual identity functional animations such as walking, running, hand-shaking, laughing, etc

**D. 3DXplorer Avatar Configurator:**

- Define your avatar, by ethnicity, name, gender, skin color
- Choose your clothes
- Add accessories
- Create and save different avatar looks (business, casual, etc.) and decide how to appear in any world
- Use your same avatar in any world created with 3DXplorer
- Add your Skype ID or phone number and let others call you from inside the worlds with Skype.

**E. A FIRST BROWSER-BASED 3D CONFERENCES SUPPORTING MORE PARTICIPANTS THAN EVER POSSIBLE**

3DXplorer is the only immersive and interactive 3D Online platform that can be used without software downloads or plug-ins; allowing businesses to create customized interactive 3D Web Conferencing spaces, handle 3D objects and products, and engage with live moderators as effortlessly as they now surf the Web. Finally, a practical 3D solution that everyone can access and leverage without system or IT constraints. With no prior experience, custom 3D spaces can be created in just minutes using 3DXplorer.

**F. TOOLS EMPLOYED:**

3DXplorer V4 also extends support for user-generated content using commonly available design and modeling tools by adding the ability to import 3D data in the popular COLLADA format. The various Modeling tools supporting COLLADA including the Maya, the 3ds Max, the Light Wave 3D, Soft image [XSI; Houdini; MeshLab, SketchUp, Blender and also various others. Google Earth's native format which is COLLADA and it's supported by Google SketchUp and the Google 3D Warehouse providing access to a huge amount of existing 3D models such as buildings, furniture, vehicles, etc which would be useful in further future developments.

**VIII FUTURE DEVELOPMENT:**

3DXplorer V5 is a major release bringing unique, first-of-its-kind innovative features to the emerging web3D market. A very stronger and also more reliable **cloud-based network architecture** which has more choices and more categories of **avatars**, over a **100 avatars simultaneously in a single room that would be large enough**, Enterprise edition enabling **intranet installations** also behind the firewall along with the unlimited number of rooms, white label services for **sales & marketing partners** and more possibilities of **customizations** are among the new features which would increase the better user experience.



Fig:7.1.7 3D world

Switching from the existing version to future V5, we'll start by a period of general availability of the new sophisticated release, in parallel with the existing release. So as of tomorrow, you 'll be able to use the new release and the new website, if you like it would be a great user experience.

#### **A. EDUCATION**

3D Internet can be used as a great learning platform for education by many institutions, such as colleges, universities, libraries and government entities which provide more better learning experiences.

##### ➤ **E-LEARNING:**

Evaluation of the learning process is done by Computer Aided knowledge/skill

Assessment system(CAA), which is a E-learning application. To improve the quality of distance and communication, technologies are applied in the education domain since they provide a way to perform experiment with equipment that is not physically present in the place, as the user.

#### **B. RELIGION**

Religious organizations can make use of the 3D Internet for multiple purposes just to open virtual meeting places within specified locations share their views.

#### **C. EMBASSIES**

We could create embassies in 3D Internet which can perform multiple functions, where visitors will be able to talk face-to-face with a computer-generated ambassador about visas this would reduce time, trade and other issues and speedup the performances.

#### **D. LIVESPORT**

##### ➤ **ENTERTAINMENT**

Various sports leagues like Cricket, Football, Professional Wrestling, boxing, Volleyball ,Athletics, auto racing and many other games could be placed in the 3D Internet for it's users to play in the 3D environment providing an better experience.

#### **E. ARTS**

We can create new forms of art use the feature of modelling oin 3D internet, which in many ways are not possible in real life due to physical constraints or high associated costs and also in due to various reasons. Artists could display their works to an audience in and around their country with the help of 3D internet. Many residents who buy or build homes can shop for artwork to place there in a more grand and attractive manner. Gallery openings even allow art patrons to "meet" and socialize with the artist responsible for the artwork and has even led to many real life sales. 3D internet could be used to enable live music performances

### **IX CONCLUSION**

We are proud in presenting an overview of the concept 3D Internet and discussed the motivation behind it as well as the specific research directions in the fields of networking and security ,distributed computing also in machine learning and also in various other fields. Our belief is that at this point in time we are facing a unique opportunity for the evolution of the Internet towards a much more versatile, interactive, and usable version of the 3D Internet which will be dominating the entire future of our society.

The emerging 3D applications along with the desktop paradigms also increasingly interactive nature of the Web 2.0, the Semantic Web efforts, with the widespread availability of powerful GPUs, novel input devices popularity, and changing intension in demographics of Internet users towards the younger, computer-literate generations, all provide the basis for the 3D Internet evolution. The hype surrounding metaverses (especially SL) should be seen under this light and taken as an indicator of the fact that many businesses are aware of the 3D Internet's potential the potential of 3D internet keeps growing to greater altitudes.

However, to make the 3D Internet a reality it is necessary and important to start and continue multidisciplinary research. Here 3dXplorer will be a milestone for the emergence of the 3d internet in the future.

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