

**PMS Microdesign, Inc.**

is an Interactive Media Technology Company for the 24th Century.

In the past we saw the world in Black & White.

Today we see the world in three dimensions and in real time.

**1.01 The Future of Interactive Media Design**

“The sky above the port was the color of television, tuned to a dead channel” is the first sentence from the book Neuromancer by William Gibson. Written in 1984, Neuromancer sets the stage for the Internet and virtual reality by coining the phrase “cyberspace” and introducing us to the matrix.

PMS Microdesign, Inc. focuses on future technologies that are available today. Web design and interactive media design technologies are merging with game design. This merger has ignited a revolution in media arts and is having a profound effect on our technological society. The game industry and its related technologies have opened a wormhole to the future that is changing how we work and play.

PMS Microdesign, Inc. specializes in real time interactive 3D design to help smooth your transition to the future. [Click here](#) to learn more about our services and technologies.

**2.00 Interactive Media Technology** - PMS Microdesign, Inc. provides innovative interactive design services.

**2.01 Pittsburgh Zoo Kiosk**

The Kids Kingdom at the Pittsburgh Zoo is the place where kids, animals and electronics come together. This was a unique opportunity to help educate and entertain kids in creative and entertaining ways. The three kiosks utilized two monitors, a 27" on the top and a 15" touchscreen on the bottom permitting all who gather to view and learn. The software was fun and informative. for example in the Meerkat "What they eat?" section you can drag a piece of pizza to the meerkat's mouth and the Meerkat says "yuck" or you can enter a cave with a flashlight and look for bats.

**2.02 Insect Explorer Kiosk for the Carnegie Museum of Natural History**

The Insect Explorer was developed for the Carnegie Museum of Natural History to educate kids about insects. The game utilizes scanned electron microscope images. A highly magnified scanned electron microscope image is displayed and the player must choose the insect that matches the image. If they get it right they get another image or the image is reduced in magnification and they can choose again.

**2.03 Bayer Rotating Monitor Kiosk**

Robots and humans share the ability to look around, to see their surroundings in 360 degrees and to break the bounds of fixed position. Designed like a periscope on a submarine, the rotating monitor can circulate in the horizontal plane with virtual elevation in the vertical plane. The uses range from a virtual laboratory for Bayer to controlling the cameras on a robot.

## **2.04 Carnegie Science Center Aquarium Kiosk**

The Carnegie Science Center's Aquarium contains a microcosm of sea life. But what draws people in is not the unique sea life but the two large strategically located Apple 21" monitors. This interactive identifies quickly all the life within the aquarium. The unique interface design allows for quick access and dynamic scrolling icons.

## **2.05 Traditional 2D Design with 3D Components**

This work integrates traditional Web design techniques with three-dimensional components. The interface was designed to introduce the viewer to the products and services of PMS Microdesign, Inc. Without warning a sound emanates from behind the screen and a Mechatech machine breaks through the screen. Located behind screen is a three dimensional scene with a Megatech model waiting to strike. After a timeout the Megatech moves forward and breaks through the screen, makes a statement then disappears. Touching the spaceship in the upper right removes the front screen interface and exposes the 3D scene behind. The scene can be navigated using the arrow keys and the space bar can be pressed to return to the interface.

## **2.06 Phipps Rainforest Explorer Kiosk**

The Phipps Rainforest Explorer combines multimedia and real time 3D gaming technology to create an educational experience that transports the learner to a Thailand rainforest. After a short introduction the learner must drag an animal or a plant to the correct layer on the screen. The software responds with information about the specific animals, plants and layers. At anytime the learner can press the "Explore Rainforest" button to explore their rainforest in real time and in three dimensions.

## **2.07 Interactive Technology on the Edge**

The PMS Microdesign, Inc. has produced innovative multimedia products and services since 1988. This early multimedia presentation uses a novel interface design to illustrate PMS Microdesign's interactive products and services.

## **2.08 Original 1996 Web Animation**

The PMS Microdesign, Inc. was an early pioneer in expanding the Internet's multimedia potential. In 1996 the Internet was dominated mainly by text and images. Macromedia was an early provider of Multimedia and Internet tools. This animated banner ad was developed with Macromedia Director Shockwave. Today this technology is revolutionizing the Web with interactive 3D content.

**3.00 Electronic Exhibit Technology** - PMS Microdesign, Inc. integrates electronic design with interactive 3D technology.

## **3.01 Virtual Schizophrenia. - Spotlighted on ABC News 20/20**

But what is it really like to see the strange visions or hear the bizarre voices? Doctors have long struggled to understand the fragmented thought that characterizes this disease. Since they were not schizophrenic, they could only imagine what patients were describing. But now there is a way for experts to truly get inside the mind of a schizophrenic. Using the technique of virtual reality, Janssen Pharmaceuticals has developed a device that simulates the visual and auditory hallucinations of a

schizophrenic patient. The user looks through goggles at an animated virtual scenario Janssen has named “Walk in Their Footsteps.” (ABC News 20/20)

### **3.02 Ants Alive! - Jackson Pollock Simulation - Rotating Monitor – Quicktime VR**

Ants Alive! is an artificial reality game where you must step on as many ants as you can. Like Jackson Pollock who was known to hurl paint at the canvas, the Jackson Pollock Simulation incorporates the throwing of Nerf™ balls at the screen to simulate paint. The Rotating Monitor is a navigation system that works like a periscope on a submarine to navigate a virtual world. This Quicktime Virtual Reality Exhibit utilizes QuicktimeVR to simulate the real world.

### **3.03 Electronic Sensor Design, 3D Animation and DVD Production**

Unique exhibit design is the seamless integration of technology and interactivity. Adding electronics sensing capability to a DVD project adds a level of sophistication and clarity that only the dance of plasmas can achieve. From 3D animation to movie generation PMS Microdesign, Inc. has the touch to create a memorable exhibit experience.

### **3.04 CAVE™ Environments and Head Mounted Displays**

The world of three-dimensional exhibit design has transformed the way modern exhibits are created. Integrating this 3D and virtual reality technology into the active exhibit design reduces costs and improved the museum and trade show experience. PMS Microdesign's 3D and virtual reality technology can operate over the Internet for world wide access or as a standalone system.

### **3.05 Interactive 3D**

Interactive 3D and virtual reality development can transform any exhibit design into a memorable experience. Visitors to the exhibit will remember longer when they can experience the reality of real time stereo 3D. The Fantasy Village 3D scene immerses the participant in a fantasy world of nature. The Castle is an enchanting 3D scene ready for your next exhibit. The Subway is an ideal metaphor for travel. This Clarinex Virtual Reality Exhibit utilizes head mounted displays, joysticks and vibrating bases to simulate the real world.

### **3.06 Jacked into Virtual Reality**

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### **3.07 Stereoscopic 3D Presentation Systems**

Philips 3D displays allow multiple users to view 3D content at the same time within a large comfort zone, providing a sustainable 3D viewing experience without the need for special viewing glasses. The 42” 42-3D6W01 is especially designed for applications that require an eye-catching 3D viewing experience.

### **3.08 Stereoscopic 3D Examples**

Perceiving the world in three dimensions requires the depth of vision that is achieved using Stereo 3D technology. Here are a few examples of Anaglyph images captured from our real time display.

### **3.09 Phone Booth Virtual Reality**

When the phone rings, answer it and be transported to another place and time.

### **3.10 Augmented Reality Viewer**

The augmented reality viewer is mounted on a swivel base and can be easily rotated to view the entire exhibit area. Looking through the viewer you would see a 3D representation of the exhibit hall in exact detail. The exhibit hall can now be modified or augmented with computer software.

An example would be a museum exhibit with a collection of dinosaur skeletons situated throughout the exhibit area. When you looked through the viewer at the dinosaurs they would now have skin over their bones and you and the dinosaurs would be hurled back in time to their native habitat. Trees and vegetation would replace the current exhibit and you could walk among the dinosaurs.

Another example would be tradeshow exhibit with a collection of automobiles situated throughout the exhibit area. When you looked through the viewer at the cars they would now have their bodies removed with only the drive train exposed. You could walk around these cars and learn why these vehicles are superior to others. You could even take one on a test drive.

Augmented reality (AR) is a field of computer research that deals with the combination of real world and computer generated data.

### **3.11 Comprehensive 3D Model Library**

**4.00 Serious Game Development** - PMS Microdesign, Inc. is a leader in applying 3D technology to interactive media design.

#### **4.01 EDUCATION - Game Based Learning**

Our technological society has enormous impact on our children. These children are brought up on video games. We at PMS Microdesign, Inc understand the needs of this new video game generation and provide tools to educate, entertain and enlighten. Our software requires no programming or 3D knowledge with imagination being the only requirement. There is ongoing research into Game Based Learning that is incorporated into our products. Here are some links into this research.

Innovate Article

Video Game Studies and the Emerging Instructional Revolution by Joel Foreman

VideoGameStudies.doc

<http://www.innovateonline.info/index.php?view=article&id=2>

Educause Articles

NEXT-Generation Educational Technology versus the Lecture by Joel Foreman

<http://www.educause.edu/ir/library/pdf/ERM0340.pdf>

Game Based Learning How to Delight and Instruct in the 21st Century

<http://www.educause.edu/ir/library/pdf/ERM0454.pdf>

#### **4.02 EDUCATION - Game Based Learning** - Phipps Rainforest Explorer

The Phipps Rainforest Explorer combines multimedia and real time 3D gaming technology to create an educational experience that transports the learner to a Thailand rainforest. After a short introduction the learner must drag an animal or a plant to the correct layer on the screen. The software responds with information about the specific animals, plants and layers. At anytime the learner can press the "Explore Rainforest" button to explore their rainforest in real time and in three dimensions.

#### **4.03 EDUCATION - Historical Simulation - Anne Frank Experience**

The Anne Frank Experience will educate a new generation on the Holocaust. Virtual reality technology will aide in bringing this new education experience into the 21st century. A generation brought up on video games will learn in an environment they are accustomed. The delivery mechanism is new the message is universal.

#### **4.04 LAW - Crime Scene Reconstruction**

Crime scene reconstruction software enables law enforcement and the legal council an opportunity to investigate a crime utilizing 3D simulation technology. Utilizing 3D technology in the courtroom helps in understanding the events of a crime. PMS Microdesign, Inc. and Duquesne University are researching 3D technology for crime scene investigation. Utilizing PMS Microdesign,'s VR2Go™ software, Duquesne University is integrating real time 3D technology into the Forensic Science and Law curriculum.

#### **4.05 LAW - Accident Scene Reconstruction**

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#### **4.06 MEDICINE - Virtual Reality Simulations - Virtual Schizophrenia on ABC News 20/20**

When PMS Microdesign, Inc. was called upon to create a virtual reality simulation of Schizophrenia. We created two scenarios, a visit to the doctor's office and a visit to the Pharmacy. 3D and virtual reality are established methods for medical research.

#### **4.07 MEDICINE - Virtual Reality Simulations - Virtual Bipolar Disorder**

Looking at the world through the eyes of a patient with Bipolar Disorder helps the gain empathy for this mental illness. The simulation uses a realistic city scene, in this case an actual location in Pittsburgh, Pennsylvania.

#### **4.08 MARKETING - Advergaming - Build your own Bumper Car**

Advergaming is the combining of interactive gaming technology and advertising. PMS Microdesign, Inc develops easy to use tools for creating on-line advergaming. The above example is a branded bumper car game. To learn more about advergaming review the following link.

New York American Marketing Association

"Advergaming: The Revolution Marketers Need to Join"

<http://www.nyama.org/events/townforum6.htm#Stuart>

#### **4.09 MARKETING - Real Time 3D Generated Television**

Internet Enabled Television or IPTV merges Television with the Internet. In the past television was broadcast over the air, by cable and by satellite. Today the Internet is the main digital communications link. With television's move to the Internet, television can now be an interactive medium. It will not be unusual to purchase a product directly for a show, movie or advertisement. View only or video only television is becoming a thing of the past. To illustrate the new merger PMS Microdesign, Inc. has created a realtime 3D generated advertisement. A Quicktime version and a full High Definition 3D generated version are provided to illustrate this new technology.

#### **4.10 ENTERTAINMENT - Real Time 3D Models and Scenes**

Test drive online 3D models and scenes. These low polygon models and scenes are fast to load and illustrate how 3D levels and objects can be used for online entertainment.

#### **4.11 ENTERTAINMENT - KidsVRStudio™ - Game Design for Kids**

Video games are the biggest craze among your people. PMS Microdesign, Inc. develops engaging 3D and virtual reality design tools for kids that require no programming or 3D knowledge. Young people can now create 3D gaming environments quickly and easily with access to one of the largest 3D model libraries from Turbosquid.

#### **4.12 WEB DESIGN - WebVR - Virtual Reality in a Browser**

WebVR is an internet based 3D visualization and virtual reality technology (author once view everywhere). Simply launch the browser (Internet Explorer, Netscape, Firefox, Safari), enter the URL and achieve full immersion. WebVR supports virtual reality technologies including HMDs, CAVEs, ImmersaDesks and supports stereo 3D formats including anaglyph, active, passive and direct-to-eye. WebVR can access 3D models and scenes that are stored anywhere on the Web and utilizes 3D models and scenes created with 3ds MAX®, LightWave®, Maya® and other industry standard 3D packages. The future of our connected society is the internet so jacking and become a part of the Digital Revolution.

#### **4.13 WEB DESIGN - Web3D - The Web in Three Dimensions**

We are moving toward a society based on parallel worlds. The world we now live in known as the Real World and the world of the Internet and virtual reality known as the Virtual World or the Matrix. PMS Microdesign understands the Virtual World and works with companies to smooth the transition. Web3D adds the third dimension to Web design and WebVR adds a new reality to Web design.

#### **4.14 WEB DESIGN - WebNav - 3D Web Navigation**

Building on the research of how people remember, PMS Microdesign, Inc. has developed the 3D Web Navigator. The "Memory Place" system states if information is organized into 3D environments such as streets or buildings it is easier to remember. When you need to remember the information you mentally walk through the streets or buildings and you can remember each fact or idea.

#### **4.15 VIRTUAL REALITY - VR and 3D Development**

Now anyone can create Virtual Reality and 3D Visualization using revolutionary new online software. Utilize a vast array of inexpensive hardware to create a virtual reality laboratory at any facility.

#### **4.16 VIRTUAL REALITY - VR2Go™ - Virtual Reality and 3D Visualization**

VR2Go™ is a full-featured 3D visualization and virtual reality tool designed to make everyone a 3D and VR developer. It requires no programming or 3D skills and provides vast array of features. The drag-and-drop interface is simple but powerful. Integrated artificial intelligence provides intelligent agents and natural language processing. VR2Go™ also supports industry standard hardware. CAVE® environments can operate completely from the web. Just login to pmsmicro.com and launch VR2Go™ on each computer in the system and go. The future of virtual reality is now.

#### **4.17 VIRTUAL REALITY - KidsVR™ - Virtual Reality Design for Kids**

Using KidsVR™ children can create Virtual Reality and Three-Dimensional environments easier than drawing with crayons. KidsVR™ empowers kids of all ages to build and inhabit their creations. Children and teachers will develop their virtual worlds and inhabit them on the screen, on the web, with virtual reality glasses and CAVE® environments. KidsVR™ even features real time rendered stereoscopic viewing. Imagination is the only requirement.

### **5.00 Electronic Hardware and Software Design - PMS Microdesign, Inc. integrates electronics with interactive media design.**

#### **5.01 Reality Satellite Multimedia Peripheral (MC68HC05)**

The Reality Satellite is the first truly versatile multimedia product. The Reality Satellite can act as a peripheral to the PC or as a standalone exhibit controller. It provides surround sound with audio input selection, sound level sensor for Kiosk sound control, light level sensor for proximity sensing, serial, MIDI and network ports for interfacing to other peripherals and IR remote control. A software handler package interfaces the PC/MAC to the Reality Satellite. This hardware is used in the Environmental Ambience systems.

#### **5.02 Nerf® Sensing Screen Controller (MC68HC12)**

The Nerf® Sensing Controller analyzes vibration data from four piezoelectric sensors mounted on a thin mylar film. The mylar film was stretched over a project screen that comprises the Nerf® Sensing Screen. The Nerf® Sensing Screen was the first interactive sensing system for determining where and how hard Nerf™ projectiles strike a video screen.

#### **5.03 Ultrasonic Controller (MC68HC12)**

The Ultrasonic Controller is a microcontroller based ultrasonic sensing system. It incorporates a Motorola MC68HC12 microcontroller and a Polaroid sensor and circuit board. The Ultrasonic Controller connects to the PC through a USB or serial port to be incorporated into a sensing system. The components are mounted in a transparent VHS videotape case.

#### **5.04 Digital Audio Signal Processor (1989)**

In the early days of digital audio, high quality 16-bit samplers were unavailable. This 16-bit signal processor utilized a 12.5 mhz Motorola MC68000 microprocessor, 16-bit ADC (analog to digital converter), 16-bit DAC (digital to analog converter), input and output low pass filters, and a high accuracy input sample and hold.

## **6.00 Interactive Marketing Technology – 3D Web Navigation**

### **6.01 An excerpt from "The Singularity is Near" by Ray Kurzweil (2005)**

“The current disadvantages of Web-based commerce (for example, limitations in the ability to directly interact with products and the frequent frustrations of interacting with inflexible menus and forms instead of human personnel) will gradually dissolve as the trends move robustly in favor of the electronic world. By the end of this decade, computers will disappear as distinct physical objects, with displays built into our eyeglasses, and electronics woven in our clothing, providing full-immersion visual virtual reality. Thus, “going to a Web site” will mean entering a virtual-reality environment—at least for the visual and auditory senses—where we can directly interact with products and people, both real and simulated. Although the simulated people will be not up to human standards—at least not by 2009—they will be quite satisfactory as sales agents, reservation clerks, and research assistants. Haptic (tactile) interfaces will enable us to touch products and people. It is difficult to identify any lasting advantage of the old brick-and-mortar world that will not ultimately be overcome by the rich interactive interfaces that are soon to come.”

### **6.02 PMS Microdesign, Inc. can provide this technology today.**

### **6.03 What is 3D Web Navigation?**

Building on the research of how people remember, PMS Microdesign, Inc. has developed the 3D Web Navigator. The “Memory Place” system states if information is organized into 3D environments such as streets or buildings it is easier to remember. When you need to remember the information you mentally walk through the streets or buildings and you can remember each fact or idea.

The 3D Web Navigator works in the same way. We create a 3D environment such as rooms in a building. Objects in these rooms are linked to your existing HTML documents. By walking from room to room you can create a mental image of the environment. This will keep your products in the minds of customers longer than traditional Web methods. We have integrated this memory aid into an easy to implement solution.

We have an extensive library of low cost 3D models ready for immediate production. The 3D Web Navigator uses Shockwave 3D, one of the most widely distributed Internet technologies from Adobe and Macromedia. See why 3D is the fastest growing technology in our consumer society.

### **6.04 Link to Memory “Tricks”: The Place System**

<http://www.legacies.ca/learn%20Anything%20Ch%204.htm#Memory%20Tricks:%20The%20Place%20System>

## **7.00 Real Time 3D Generated Television)**

### **7.01 The Future of Television**



When you hear the phrase “Live Broadcast Television” you immediately think of the early days of television when all television broadcasts were live. Later in television's history recording devices were invented and television became a recorded medium. With Google's purchase of youtube.com recorded TV has exploded on the Internet. The Internet is the future of television.

Today we are seeing more movies and television shows on the Internet. The proliferation of current non-interactive content on the Internet will transcend to the experiential world of interactivity and virtual reality. PMS Microdesign, Inc. develops real time 3D generated interactive content for the Internet. The future of interactive television and movie content on the Internet has arrived.

The following are examples of real time 3D generated interactive content and are provided to illustrate the possibilities for the future. In addition to the real time 3D generated interactive example a non-interactive video example is also provided. The software is easily scaled to accommodate different screen resolutions. A 320x240 and 800x600 examples are provided. Using 3D generated content allows for High Definition quality at the maximum 1080p resolution that equates to 1920x1080.