

Josephine Anstey, Dave Pape

**Title** Human Trials

**Genre** virtual reality drama

**Applicant's Role in Production** writer, director, producer, software architect

**Production Format** projection-based, interactive virtual reality

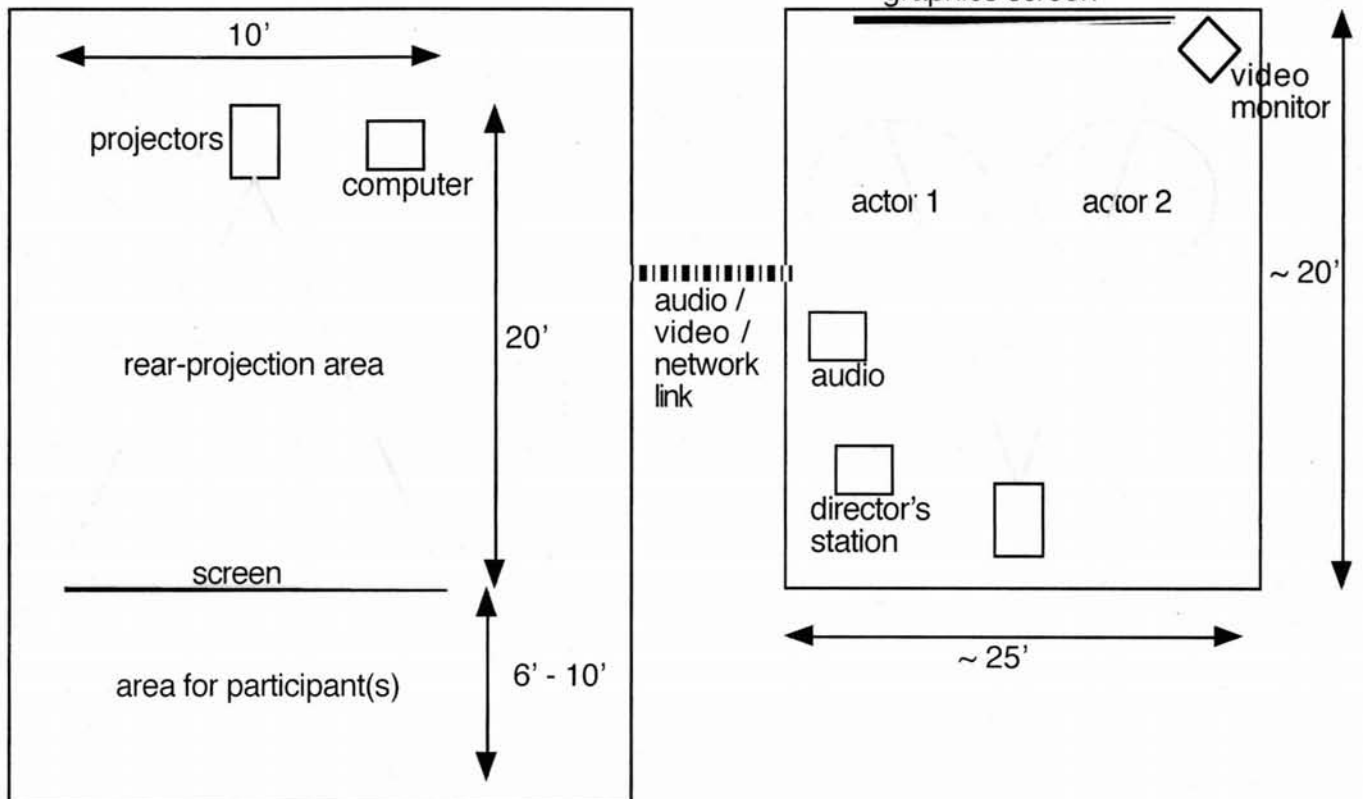
**Brief Project Description** (do not exceed space given below)

This project is a virtual reality drama, *Human Trials*, to be presented in an immersive virtual reality system, featuring live actors controlling computer graphic characters that interact with the participant. Imagine Tarkovsky's *Stalker*, crossed with *Alice Through the Looking Glass*, crossed with *Monty Python and the Holy Grail*. Now imagine embarking on a guided journey through this warped yet familiar landscape. As you proceed your actions and interactions are observed, interpreted psychologically, and used to determine the outcome of your quest.

The underlying question for this project is: Can virtual reality be as powerful a medium for fiction as novels, plays, film? VR immerses the user in a 3D audio/visual environment which she navigates and interacts with in real time. In fiction, the reader/viewer identifies with a protagonist who is dealing with a challenging situation. It has proven very difficult to bring the two together and make the user the protagonist, navigating a dramatic situation that is rich emotionally, psychologically, sociologically, politically. This project builds on the lessons we learnt creating a previous virtual fiction, *The Thing Growing*, and continues our explorations and experimentations in the field of virtual fiction.

New Media Fellowship Application  
Josephine Anstey, Dave Pape

Installation Diagram



**Josephine Anstey, Dave Pape**

If you are sending more than one sample, please copy this page. Sample(s) must be cued: indicate how long each sample should be viewed for a COMBINED viewing time of no more than 15 minutes. If slides are included in this application, please list the title and year of the work on this form.

**Title** The Trial The Trail

**Year** 2003-2004

**Technical****Original Format**

☐ Software

☐ Web

☐ x Installation

☐ Other \_\_\_\_\_

Other \_\_\_\_\_

**Format Submitted for Viewing**

☐ Software

☐ Web

☒ VHS

☐ Other \_\_\_\_\_

**Preferred OS**

☐ Windows

☐ Mac

☐ Unix

☐

**Web Information** (answer only if sample work is in Web format)

☐ URL \_\_\_\_\_ (if more than one please list them below)

☐ Browser requirement(s)

☐ Plug-in requirement(s)

☐ This sample requires broadband connection (fast Internet connection)

☐ A local copy of the sample work has been included with the application

**Special Information For Viewing:****Description of Work** (use an additional sheet if necessary)

The Trial The Trail is a work in progress. It is a virtual reality drama featuring AI-driven computer characters. This tape is documentation of a showing of an early draft of the work, at Hallwalls Contemporary Art Center in 2004.

New Media Fellowships

Check One: ☐

Sample

2006 Sample Work Form

Supplemental ☐**Josephine Anstey, Dave Pape**

If you are sending more than one sample, please copy this page. Sample(s) must be cued: indicate how long each sample should be viewed for a COMBINED viewing time of no more than 15 minutes. If slides are included in this application, please list the title and year of the work on this form.

**Title** The Thing Growing**Year** 2000**Technical****Original Format**☐ Software☐ Web☐ x Installation☐ Other \_\_\_\_\_

Other \_\_\_\_\_

**Format Submitted for Viewing**☐ Software☐ Web☒ VHS☐ Other \_\_\_\_\_**Preferred OS**☐ Windows☐ Mac☐ Unix☐**Web Information** (answer only if sample work is in Web format)☐ URL \_\_\_\_\_ (if more than one please list them below)☐ Browser requirement(s)☐ Plug-in requirement(s)☐ This sample requires broadband connection (fast Internet connection)☐ A local copy of the sample work has been included with the application**Special Information For Viewing:***2<sup>nd</sup> recording on Sample Work Tape.**Please ignore VCR-like controls on bottom of screen - last minute screwup with video deck.***Description of Work** (use an additional sheet if necessary)

The impetus for The Thing Growing was a short story Anstey had been writing. In the story she wanted to explore a relationship that was cloying and claustrophobic but emotionally hard to escape. An immersive, interactive VR environment seemed an ideal medium to recreate the tensions and emotions of such a relationship.

The Thing Growing is designed to allow the user to take part in a model of

a dysfunctional relationship. Much of the Thing 's behavior models childish power plays. It is designed to engage at a level beneath that of polite adult intercourse. It pouts, whines and threatens when it doesn't get its own way. It flatters outrageously and insults viciously. It gloats when the user is in its power. To express its love it copies the user or demands to be copied. All of these behaviors are designed to conflate self and other. Jessica Benjamin suggests that during the process of differentiation from the mother, the child's task is not merely to establish that it is separate, but that it must also recognize the other as a subject. She suggests that this "mutual recognition is perhaps the most vulnerable point in the process ..." She discusses the positions that the evolving self may become stuck if unable to negotiate this point : "If I completely control the other , then the other ceases to exist, and if the other completely controls me, then I cease to exist territory that the The Thing Growing is designed to explore.

New Media Fellowships

Check One: \_\_\_\_\_

2006 Sample Work Form

Sample

Supplemental \_\_\_\_\_

**Josephine Anstey, Dave Pape**

If you are sending more than one sample, please copy this page. Sample(s) must be cued: indicate how long each sample should be viewed for a COMBINED viewing time of no more than 15 minutes. If slides are included in this application, please list the title and year of the work on this form.

**Title** PAAPAB

*Supplemental work sample*

**Year** 2001

**Technical**

**Original Format**

\_\_\_ Software

\_\_\_ Web

\_\_\_x Installation

\_\_\_ Other \_\_\_\_\_

Other \_\_\_\_\_

**Format Submitted for Viewing**

\_\_\_ Software

\_\_\_ Web

x\_ VHS

\_\_\_ Other \_\_\_\_\_

**Preferred OS**

\_\_\_ Windows

\_\_\_ Mac

\_\_\_ Unix

\_\_\_

**Web Information** (answer only if sample work is in Web format)

\_\_\_ URL \_\_\_\_\_ (if more than one please list them below)

\_\_\_ Browser requirement(s)

\_\_\_ Plug-in requirement(s)

\_\_\_ This sample requires broadband connection (fast Internet connection)

\_\_\_ A local copy of the sample work has been included with the application

**Special Information For Viewing:**

**Description of Work** (use an additional sheet if necessary)

Virtual Reality experiences can be shared over high speed networks. This means that participants in different cities or countries can enter the same virtual environments. The different participants will see "avatars" of each other. An avatar is a graphic representation of the person in the virtual environment. The avatars move as the users navigate through the virtual environment. The position and orientation from the tracking sensors attached to the user's head

and hands is fed to her avatar, so when the user moves her head, the avatar's head moves, etc. Avatars can come in all shapes and sizes, the avatar on the left is a skeleton with a photographic image for its face.

PAAPAB (Pick An Avatar, Pick A Beat) is a networked dance floor application for CAVE or other projected VR display systems, built in 2001-2 at the University at Buffalo. In the video documentation users in CAVEs and CAVE-like systems in Amsterdam, Chicago, Champaign-Urbana, Buffalo, and Bloomington, are all on the virtual dance-floor. In addition life-size puppets dance around - indistinguishable at first from the avatars. The puppets can be animated by the users. Users from the different remote locations can watch each other record motion for the puppets. They can also dance with each other and their puppet recordings on the dance floor.

The video also documents a non-networked version of this application that we installed as part of a real dance floor at a fundraiser for the Hallwalls Contemporary Arts Center in Buffalo. For this installation, we used some parts of our low-cost VR system, but sacrificed stereo imagery for size - we used our two projectors to project the virtual environments onto a large, plastic screen that was roughly ten feet high by 20 feet long. Recording a puppet on the virtual dance-floor became part of the evening's entertainment along with watching break dancers, drag queens, fashion shows and live bands.

New Media Fellowships	Check One: <input type="checkbox"/>
2006 Sample Work Form	Sample <input checked="" type="checkbox"/>
	Supplemental <input type="checkbox"/>

## Josephine Anstey, Dave Pape

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**Title** Falling Over You

*Supplemental work sample*

**Year** 2003

### Technical

#### Original Format

☐ Software  
☐ Web  
☒ Installation  
☐ Other \_\_\_\_\_  
 Other \_\_\_\_\_

#### Format Submitted for Viewing

☐ Software  
☐ Web  
☒ VHS  
☐ Other \_\_\_\_\_

#### Preferred OS

☐ Windows  
☐ Mac  
☐ Unix  
☐ \_\_\_\_\_

### Web Information (answer only if sample work is in Web format)

☐ URL \_\_\_\_\_ (if more than one please list them below)

☐ Browser requirement(s)

☐ Plug-in requirement(s)

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### Special Information For Viewing:

### Description of Work (use an additional sheet if necessary)

The "Falling Over You" Interactive Wall is a large scale, interactive video environment. It was set up at the Albright Knox Art Gallery in conjunction with an exhibition of paintings "Frank Moore: Green Thumb in a Dark Eden" (Feb-April 2003). The exhibition included paintings from Moore's "Niagara Falls" series. Since these are of particular local interest, the Gallery wanted the interactive space to be based on the Falls. The interactive wall is a meditation, an



interpretation, and a point of access to Frank Moore's paintings, which deal with environmental and healthcare activism. inspiration for the wall's design; the graphic elements are taken from his paintings, and the painting behind the virtual Falls is ``Niagara".

Looking through the door, the Interactive Wall is merely a large screen in an empty room showing video footage of Niagara Falls. If you enter the room and move about in front of the screen, scientists in white coats, buffalo, and eye-balls tumble over the falls; mixed swarms of butterflies, snowflakes and chemical symbols drift across with the spray; hybrid telephone/cornstalks and flower pistil/hypodermic needles grow up against the current. If you get closer, the video images part around you and reveal a painting beneath. The visuals are accompanied by a sound recording of Niagara Falls.

## **New Media Fellowship Application Josephine Anstey, Dave Pape**

### **Artists' Statement**

We believe that immersive virtual reality (VR) is a tremendously powerful medium for artistic expression. Immersive VR means the user is made to feel that he is physically present in a computer-generated world, not merely watching it through a monitor, and can interact directly with virtual objects. We are interested in seeing VR reach its potential by producing strong content, pioneering VR authoring tools for artists, and promoting low-cost, projection-based, VR solutions so that this exciting medium can become as ubiquitous as other media.

Our primary focus for content creation is the construction of virtual drama. When we read a novel or watch a film, we may identify with the protagonist. In virtual reality (VR) the relationship is more direct -- the user is the protagonist. We build a dramatic environment in which the user, as the main protagonist, interacts with virtual characters. The fiction that results is something that happens to the user; the application does not simply tell her a story, it actively involves her in a chain of events with emotional implications. We believe that the drama is heightened in immersive VR environments, because the user is a peer, in terms of size, with the virtual characters. The characters have a physical presence. They can get close to the user. They can use their size to intimidate, get in the way, indicate affection.

Josephine Anstey has been working with experimental narrative since 1983. She collaborated with Julie Zando on a series of video-tapes, including *Lets Play Prisoners* (1988), and *The Bus Stops Here* (1990). The tapes explore sexuality, power relationships and desire. These themes resurface in our virtual drama. *The Thing Growing* (2000), recreates a relationship that is cloying and claustrophobic but emotionally hard to escape. The user is enticed into experiencing the ups and downs of the relationship by the Thing, an intelligent agent who simulates emotions in order to stimulate her emotional and psychological responses. The themes to be explored in our proposed project, *The Trial The Trail*, include the dyads of bullying/being bullied; humiliating/being humiliated; trust/betrayal and the nature of our hearts' desire. An interactive dramatic environment allows the user to directly explore these issues, her own emotions drive the narrative, but at the same time it is a safe space, an unreal space, a place of play, introspection, risk-taking and discovery. These works are intimate explorations for the user, not just of a virtual landscape but of her own psyche.

Producing work for VR is technically challenging, artists must either be programmers or work with programmers. Software toolkits that exist are expensive and limited. Since 1996, Pape has been designing an open source VR authoring framework, Ygdrasil, for the swift construction of virtual environments. A wide variety of art and cultural heritage projects have been created with this framework. Projects include: *The Multi Mega Book in the CAVE* (Fischnaller et al.) winner of the Foreign Title Award in the Theatre and Exhibition Section of the Multimedia Grand Prix '97, Multimedia Content Association of Japan; *Mitologies* (Roussos & Bizri); *Alive on the Grid* (Sandin et al.) which premiered as the first networked VR art show at the Ars Electronica

Festival in 2001; and the VR exhibits at the Foundation of the Hellenic World in Athens. We believe that it becomes important to recognize software development as an integral part of the art making process for computer-based art. The Ygdrasil toolkit handles a number of activities common to VR environments, such as assembling a world from 3D models, collision detection, navigation, and dynamic event-handling. It provides a framework for extension; application-specific plugins may be added to define behaviors for objects or characters. The Ygdrasil system is designed to be accessible on a variety of levels - non-programmers can construct environments using existing modules; programmers can add new modules. Anstey and Pape's projects use, beta-test and refine Pape's software tools.

A projection-based VR system is a core element of our proposed project, facilitating the kind of psychological and cathartic fictional experiences we are interested in producing. However, the cost, size, fragility, and high maintenance aspects of such systems have made them relatively rare. Systems such as the CAVE(r) Virtual Reality Theater cost on the order of \$1,000,000, have a very large architectural footprint, and are usually only found in research laboratories in academia and industry. In the last few years, pressure from the games industry has resulted in PCs with fast video cards capable of creating realtime, highly resolved, 3D graphics of a quality that was once only obtainable from Silicon Graphics workstations and reality engines. Using PCs and the new range of DLP projectors it has become feasible to prototype projected VR systems that, if not within the range of the home entertainment industry, are within the economic range of museums, galleries, university department, games arcades etc. Since 2000 Anstey and Pape have been researching low-cost VR solutions and have developed low-cost VR systems for the Department of Media Study, and given numerous conference presentations and workshops to assist other groups in building their own systems.

Our ideal exhibition set up is that the user should be alone with the virtual world, uninhibited in her interactions with the virtual characters. We look forward to the day when VR systems are so common we will routinely exhibit work to an audience of one - the user who is the protagonist of our virtual drama.

## New Media Fellowship Application Josephine Anstey, Dave Pape

### Project Narrative

This project is a virtual reality drama, *Human Trials*, to be presented in an immersive virtual reality system. The project is conceived of as an offshoot of our very long-term work-in-progress, *The Trial The Trail*. Imagine Tarkovsky's *Stalker*, crossed with *Alice Through the Looking Glass*, crossed with *Monty Python and the Holy Grail*. Now imagine embarking on a guided journey through this warped yet familiar landscape. As you proceed your actions and interactions are logged, interpreted psychologically, and used to determine the outcome of your quest.

The underlying question for this project is: Can virtual reality be as powerful a medium for fiction as novels, plays, film? VR immerses the user in a 3D audio/visual environment which she navigates and interacts with in real time. In fiction, the reader/viewer identifies with a protagonist who is dealing with a challenging situation. It has proven very difficult to bring the two together and make the user the protagonist, navigating a dramatic situation that is rich emotionally, psychologically, sociologically, politically. This project builds on the lessons we learnt creating a previous virtual fiction, *The Thing Growing* [1], and continues our explorations and experimentations in the field of virtual fiction. We hold that the deft and appropriate adaptation of dramatic techniques from existing narrative media and of interactive strategies from the games industry and art community are necessary for success [2]. Further, we believe that users require a safe space to become privately involved in the virtual world; currently, most immersive VR experiences in museums or entertainment spaces cater to groups - not a situation in which someone is likely to permit herself the kind of emotionally risky or revealing interactivity that is central to a compelling, virtual fiction experience.

The basic conceit of our drama is a quest narrative: on a journey through the virtual landscape users will encounter challenges and distractions as they attempt to reach the grail, their heart's desire. These include creatures to fight or rescue, rivers to cross or splash in, reed beds to get lost in. The experience is designed to be a psychological encounter. The scenarios put users in situations where they may be aggressive and bullying, or have to cope with aggression; they may mock others or find that they are mocked. Their reactions are tabulated and an analysis of their personality is made - admittedly an analysis that serves the ends of this drama. If they choose to go forward to get their heart's desire, they may get Life: which is correlated with domination and the inability to recognize the existence of anyone else; or Death: correlated with submission, and the desire to let some powerful other take care of everything. The quest scenarios are comedic and fantastic, but the ending is serious.

The story-line of *Human Trials* comes from our ongoing project *The Trial The Trail*. In *The Trial The Trail*, we have been collaborating with the University at Buffalo's SNePS Artificial Intelligence research group, to build AI agents that can play the roles of the characters in the drama, including observing the user's actions and interacting with her in spoken English. As with much research in AI, the problems of this project have proven to take a very long time to resolve; we have shown in-progress portions of the work on several occasions, but the endpoint of the full project is still a long time off. We have decided to create a separate, finished piece - *Human Trials* - based on the same story, but using human actors to control the virtual characters. *The Trial The Trail* will continue to evolve separately, both in technology and in content.

## Description

*Human Trials* will be shown on a projection-based virtual reality display. A user stands in front of a large, stereoscopic rear-projection display that fills her field of view, to give the effect of being immersed in the 3D computer graphics. The user wears 6-degree-of-freedom tracking sensors that tell the computer the location and orientation of her head and hands, allowing for direct, physical interaction with the virtual world (i.e. the user can move about physically, point at things, pick things up with her hands, etc.) A "wand" device, similar to a small video game controller, is used to provide additional interaction controls. All of the imagery is generated in real-time by the computer. The actors, and director, will not be in the same real-world space, but will be located somewhere else. They will observe the user through a video link, and a separate, networked computer display of the virtual world. They will have headset microphones to communicate with the user, and will also have 6-degree-of-freedom tracking systems, allowing them to control characters in the virtual world (similar to how motion capture is done for video games and movie special effects). There will be two actors to control the major characters in each scene in real time, allowing them to react to the user; other, minor characters will have had their motions recorded in advance, to be played back under control of the director, or automatically by the program.

When completed, a performance of *Human Trials* will be a 20-30 minute experience for a single person or a small group audience. The basic structure of the script will have been worked out in advance, including much dialog and actions by the virtual characters, but the details of any performance will be partially improvised by the actors and director in response to the user's actions. In many cases, their job will be to nudge and guide the user from scene to scene, while still leaving her with the illusion of some control.

## Feasibility

The project makes use of the same projection-based VR hardware that we have used in previous works. We have two such systems (one small, one large) that we have built at the Department of Media Study in Buffalo; these systems can be transported, when equipment is not already available at a show site. The software will be built on a VR authoring tool that we have developed over the past several years; the character motion-capture and networking techniques are similar to work we have done in past projects such as *PAAPAB*. 3D models of characters, objects, and sets will need to be created - for this, we have a number of students skilled in Maya modeling.

During the summer of 2005, we took part in the Buffalo Infringement Festival, a fringe theater and performance event. A number of other, 'traditional' performers there expressed interest in collaborating with us on future VR dramas, so we are confident that we will be able to find actors willing to take the parts of computer characters. We have also begun working with Professor Sarah Bay-Cheng, of the UB Theatre Department, who will provide further input on the development of the drama itself.

## Use of Work

The technology involved makes it difficult to show VR works widely, and the requirements of this project increase that difficulty. We are currently candidates for the Banff New Media Institute's Co-production Program, and would anticipate making use of their facilities for a first public run-through of the drama in Banff during the summer of 2006. We will be proposing to show the work at the SIGGRAPH and/or ISEA conferences in 2006, in which case we would transport our equipment to the conference. We also plan to have multiple showings locally in Buffalo, for the 2006 Infringement Festival. In the future, we would look to show the work at art & technology museums such as the Ars Electronica Center (Linz), the NTT InterCommunications Center (Tokyo), and the Foundation of the Hellenic World (Athens) - all

locations where we have been able to show other VR work in the past; we also have connections to the Art Museum of Western Virginia, who will be opening a new building in 2007 featuring a CAVE virtual reality system that could accommodate *Human Trials*.

#### **Budget Narrative**

The total cost of this project -- including our existing VR display, grant support for graduate student assistants, and this proposal -- is approximately \$80,000.

The major expenses that will be covered by Fellowship money are: an additional tracking system (an Ascension Flock of Birds or similar), for the actors to use in pre-recording motions and the real-time character control; an additional video projector, to provide a monoscopic display of the virtual world for the actors and director; audio/video equipment to use in monitoring and communicating with the user; fees to pay 2 or 3 actors for the motion pre-recording work, and the live performances; fees for a 3D Maya modeler and a sound designer to complete work on the various materials that will be used in the virtual environment; and travel to two exhibitions of the work.

1. Anstey, Josephine, Dave Pape. "The Provoking Thing: A VR Relationship" in the Technical Report of Emotional and Intelligent II: The Tangled Knot of Social Cognition, Papers from the 2001 AAAI Fall Symposium, North Falmouth, MA, 2-4 Nov 2001
2. Anstey, Josephine, Dave Pape. "Scripting the Interactor: An Approach to VR Drama" in proceedings of the Fourth Creativity and Cognition Conference, ACM SIGCHI, Loughborough University, UK, Oct 13-17, 2002

**New Media Fellowship Application  
Josephine Anstey, Dave Pape**

**Budget**

Graphics software license	\$ 500
6 DOF tracking system	\$ 12,000
Video projector	\$ 3,000
Video monitoring system	\$ 500
Audio equipment (headset mics, mixer, loudspeakers)	\$ 2,000
Actors' fees	\$ 5,000
Modeler's fee	\$ 2,500
Sound designer's fee	\$ 2,500
Travel to Banff Centre	\$ 3,000
Travel to SIGGRAPH or ISEA (incl. shipping equipment)	\$ 4,000
<hr/>	
Total	\$ 35,000

## CURRICULUM VITAE

Josephine Anstey

### Professional Experience

**Assistant Professor**, Department of Media Study (DMS), University at Buffalo, 2000 - present

- Courses: virtual reality (VR) production, interactive media analysis.
- Curriculum development: "digital" component of Media Studies BA, MAH and MFA degrees
- Facilities development: immersive VR studio & linux lab for students studying realtime, interactive computer graphics.

**Research Assistant**, Electronic Visualization Laboratory (EVL), UIC, 1996-2000

**Freelance Producer/Writer** 1986 - 1995

**Teaching Assistant**, Department of American Studies, UB, 1982-1984.

### Professional Activities

**Virtual Reality Art and Research**, 1995 - present

- 1995- Present: Creation of Interactive Drama in VR, "The Trial The Trail" (current), "The Thing Growing" (1997-2001). I am currently working on the development of intelligent agents to serve as actors for these dramas with the SNePS AI group.
- 2001 - Present: Collaboration on a series of ground breaking networked VR art exhibitions, viewed simultaneously by audiences in the US, Europe, South America and Japan. Development of networked art piece "PAAPAB" for these exhibitions.
- Other VR related art collaborations include: interactive wall installation, "Falling Over You" (2003), networked VR cultural heritage project "Shared Miletus," (coordinator/programmer, 2000); virtual reality experience "The Multi-Mega Book in the CAVE" (coordinator/programmer 1996-7).
- VR projects involving scientific visualization and industrial application include, "Enhancing Crystal Structure Determination through Data Mining, Collaborative Environments, and Grid Computing" (2002-3), "Interactive welding application" for Fronius, an Austrian welding company (1997)
- Research on low-cost VR solutions, development of Low Cost VR System for the Department of Media Study, UB, and use of system to direct the creation of VR art projects by UB Students.
- Artist in Residence, Ars Electronica Center (AEC), Linz, Austria, May- Aug 1997

**Video Art, Prose Fiction, Documentary**, 1983 - present

- 1983 - 1999: Collaboration with Julie Zando as a writer, performer and producer on a series of award winning, experimental video tapes. "The Apparent Trap"



(performer, 1999); "Uh-Oh" (producer, 1994); "The Bus Stops Here" (writer/producer/performer, 1990); "The Ah-Ha! Experience" (writer, 1988); "Let's Play Prisoners" (writer/performer, 1988); "Hey Bud" (performer, 1987); "Fru-Fru Le Bon Weston Goes to the Soft Seas" (performer 1983).

- 1985 – 1996: Production of a series of short stories. Two have been published, one is a self-published hyper-text, one is a video tape. "The House of Nishime", 1996; "Les Girls", 1996; "Dwayne Loves Johnny Coggio," 1995; "Let's Play Prisoners", 1988.
- 1994: Produced a 30 minute documentary on BlackFeet Women Forest Fire Fighters which aired on NPR's Horizons, "Battling the Heat:BlackFeet Women Fire Fighters." Produced a five minute report of the same material which aired on the BBC's Woman's Hour, "BlackFeet Firewomen". 1994

#### Computer Graphics and VR Research Community Activities

- Reviewer for CUNY Collaborative Incentive Research Grant Program, 2004
- Workshop co-organizer, "VR for Public Consumption," IEEEVR 2004 conference, Chicago IL, March 2004
- NSF Review Panel 2004, Washington DC, Spring 2004
- Juror, Medi@terra 2002, judging the Best Project in the Artificial Entities Category, Athens, Greece, Dec 2002
- Panel Chair, SIGGRAPH 2001, The CAVE and Beyond: VR Art in Museums and Galleries, LA, CA, Aug 2001
- Panel Chair, SIGGRAPH 1998, Chair of the Interactive Installations Panel, Gallery Talks, LA, CA, Aug 1998

#### Education

- **Master of Fine Arts** in Electronic Visualization, University of Illinois at Chicago (UIC), 2000
- **Master of Arts** in American Studies/Women's Studies, University at Buffalo, State University of New York, 1986
- **Bachelor of Arts (hons)** in English Studies, University of East Anglia, Norwich, England, 1977

#### Grants & Awards

- **Dr. Nuala McGann Drescher Award:** Affirmative Action/Diversity Leave Program, State of New York/United University Professions Joint Labor-Management Committee 2005 – 2006
- **IRCAF Grant:** "Virtual Drama with Intelligent Agents," University at Buffalo, PI, 2003
- **Young Investigator Award:** Exceptional Scholars Program, University at Buffalo, 2003
- **NSF Award 0204918:** ITR: Enhancing Crystal Structure Determination through Data Mining, Collaborative Environments, and Grid Computing, Co-PI, 2002-3
- **Faculty Development Grant:** Awarded Education Technology Grant, by the Faculty Development Committee of the University at Buffalo, 2001
- **Foreign Title Award:** "The Multi Mega Book in the CAVE," in the Theatre and Exhibition Section of Multimedia Grand Prix '97, Multimedia Content Association of Japan, 1997
- **University Fellowship:** University of Illinois at Chicago, 1995-1997
- **Second Prize:** "Uh-Oh", 6th International Video Festival, Cultural Council of the

City of Vigo, Spain, 1995

- **Chelsea Award for Short Fiction:** "Dwayne Loves Johnny Coggio", 1994
- **Best Dramatic Video:** "The Bus Stops Here", 15th Annual Atlanta Film & Video Festival, 1991
- **Best Experimental Video:** "Let's Play Prisoners", 13th Annual Atlanta Film & Video Festival, 1989
- **Grand Prize:** "Let's Play Prisoners", Black Maria Thomas Edison Film & Video Festival 1989

## Exhibitions

### Permanent Collections

"PAAPAB" & "The Multi Mega Book in the CAVE," Ars Electronica Center, Linz, Austria

"The Bus Stops Here," "The Ah-Ha Experience," & "Let's Play Prisoners," The Museum of Modern Art, New York

"The Bus Stops Here," & "Let's Play Prisoners," Centro d'Arte Reina Sofia, Madrid, Spain

"Let's Play Prisoners," The Long Beach Museum, Long Beach, California

### Selected Exhibitions

"The Thing Growing," & "The Trial The Trail:Act 3," VR Presentation, *Virtual Reality MicroTheatre*, at the Infringement Festival, Buffalo, NY, 4-7 August 2005

"The Trial The Trail:Act 3," Video Documentation, *Demonstrations* at the Twentieth National Conference on Artificial Intelligence (AAAI-05), Pittsburgh, PA, 9-13 July 2005,

"The Trial The Trail:Act 3," VR Presentation, *Demonstrations* at the First Annual Artificial Intelligence and Interactive Digital Entertainment Conference (AIIDE-05), Marina Del Rey, CA, 1-3 June 2005,

"PAAPAB" Networked VR Presentation, *Collaborative Virtual Environments Art Exhibition*, at the SPIE Electronic Imaging 2005 Conference, San Jose, CA, 19-20 January 2005 (networking between Buffalo, Indiana, Chicago)

"PAAPAB" Networked VR Presentation, *V\_Hive*, at the Virtual Worlds Festival, the Seventh Symposium on Virtual Reality (SVR), Sao Paulo, Brazil, October 19-22, 2004, (networking between Sao Paulo, Buffalo, Indiana, Chicago & Stockholm)

Organized VR, Networking and Collaboration and exhibited "PAAPAB" Networked VR Presentation (networking between Buffalo, Indiana and Chicago); and Experimental scenes from "The Trial The Trail", VR with AI agents, at Networks, Art and Collaboration Conference, Buffalo, NY 24-25 April 2004

"PAAPAB" Networked VR Presentation, SPIE: The Engineering Reality of Virtual Reality 2004 Conference, San Jose, CA, 22 January 2004 (networked between San Jose, Buffalo, Indiana and Chicago)

"The Bus Stops Here" Video, *Standby:No Technical Difficulties*, MoMA Film at the Gramercy Theatre, New York NY, Oct 12, 2003

"The Thing Growing" and "The Trial The Trail", *VR Micro Theater*, VR Presentation and User Test, Hallwalls Contemporary Arts Center, Buffalo NY, June 7-21, 2003

"The Apparent Trap," Video, *About a Girl*, I Found it at the Movies Series, Berkeley Art Museum & Pacific Film Archives, UC Berkeley, CA, June 18, 2003

"Depth Cues" Produced VR presentation of student artwork, Squeaky Wheel, Buffalo, NY, 19 April 2003

"Falling Over You" Interactive Installation, Albright Knox Art Gallery, Buffalo, NY, 1 February - 20 April 2003

"PAAPAB" Networked VR Presentation, Stockholm ArtFair, Stockholm, Sweden, 6-9 March 2003 (networked between Stockholm, Buffalo, and Chicago)

"PAAPAB" Networked VR Presentation. en.red.ando's III One Day Conference, Barcelona, Spain, 31 January 2003 (networked between Barcelona, Buffalo, Chicago, and Umea, Sweden)

"The Thing Growing", "PAAPAB" VR Presentation. Medi@terra 2002 conference, Athens, Greece, 9 December 2002

"The Apparent Trap," Video, Consolidated Works, Seattle, November. 8-9 2002

"PAAPAB," Networked VR Presentation, *IGrid 2002*, Amsterdam Science & Technology Centre, Amsterdam, September 2002 (networked between Amsterdam, Buffalo, Chicago, Urbana IL, and Bloomington IN)

"PAAPAB," VR presentation, *Pier Pleasure*, Hallwalls Contemporary Arts Center Fundraiser @ The Pier, Buffalo, NY July 2002

"The Trial, The Trail" & "Virtual Tales" VR presentations, *The Virtual and the Concrete*, Hallwalls Contemporary Arts Center, Buffalo NY, May 2002

"PAAPAB," VR presentation, *immedia 2002*: U of M, Media Union, Ann Arbor, MI, Feb 2002

"PAAPAB," VR Presentation, *EVL: Alive on the Grid*, Digital Frontier's Summit, Buffalo, NY, Nov. 2001

"PAAPAB," Networked VR Presentation, *Alive on the Grid* Alternate Currents, Chicago Artists' Month, Oct 2001

"PAAPAB," Networked VR presentation, *EVL: Alive on the Grid*, Ars Electronica Festival, Austria, Sept. 2001

"The Thing Growing," VR presentation, *The Adventure of CAVE: Seven Programs from EVL*, University of Illinois at Chicago, NTT InterCommunication Center, Tokyo, June 2001

"The Thing Growing," VR presentation, *EVE5 - Virtual Reality Art Environments in the CAVE®*, Electronic Visualization Laboratory, UIC, Chicago, March 2001

"The Thing Growing," VR presentation, *immedia 1901*: U of M, Media Union, Ann Arbor, MI, Feb 2001

"The Apparent Trap," Video, *Fancy Pants*, Mix Festival, NYC, Nov 19, 2000

"Shared Miletus," Networked VR presentation, *iGRID 2000*, INET 2000, The 10th Annual Internet Society Conference, Yokohama, Japan, 18-21 July 2000

"The Thing Growing," VR presentation for the *Special Guests of Robert Ebert's Overlooked Film Festival*, National Center for Supercomputing, Champaign-Urbana, April 2000

"The Apparent Trap," Video, *Camp Fire*, Pratt Institute Film Series, Brooklyn, NY, April 26, 2000

"The Thing Growing," VR presentation at *Dan Sandin Visiting Artist Lectures*, Santa Fe Art Institute, Santa Fe, April 2000

"The Thing Growing," VR presentation, Electronic Visualization Laboratory, UIC, Chicago, March 2000

"The Thing Growing," VR presentation, *immedia 2000*: U of M, Media Union, Ann Arbor, MI, Feb 2000

"The Apparent Trap," Video, *Shifting Positions: New Video Part One*, Chicago Filmmakers, Chicago, Jan 21, 2000

"The Thing Growing" VR presentation, *EVL@ARS*, Ars Electronica Festival 99: Life Science, Linz, Sept. 1999

"The Thing Growing" VR presentation, *VR Story-telling*, Electronic Schoolhouse, SIGGRAPH 99, Los Angeles, Aug 1999

"The Thing Growing," VR presentation, *Virtuality and Interactivity*, MediArtech 99, Florence, May 1999

"The Thing Growing" VR presentation, *Second Nature*, Ukrainian Institute of Modern Art, Chicago, May 1999

"The Thing Growing," VR presentation, *After Hours*, Walker Art Center, Minneapolis, April 1998

"The Thing Growing," Video documentation, *Digital Salon*, School of the Visual Arts, New York, Nov. 1998

"The Multi Mega Book in the CAVE," VR presentation, Art Futura 98: La Segunda Piel, Teatro Central de Sevilla, Sevilla, Oct. 1998

"The Thing Growing," VR presentation, Ars Electronica Festival 98: Info War, Linz, Sept. 1998

"Guerilla VR," VR presentation, *Digital Pavilions*, SIGGRAPH 98, Orlando, Aug 1998

"The Thing Growing," Video documentation, *Electronic Fields*, Illinois Art Gallery, Chicago, April/May 1998

"The Multi Mega Book in the CAVE," VR presentation, *Digital Renaissance*, MediArtech 98, Florence, March 1998

"The Multi Mega Book in the CAVE," VR presentation, Art Futura 97: El Futuro del Futuro, Circulo de Bellas Artes, Madrid, Oct. 1997

"The Multi Mega Book in the CAVE," VR presentation, *Virtual Spaces*, ISEA 97 Allied Event, Gallery 400/Electronic Visualization Laboratory, University of Illinois at Chicago, Chicago, Sept. 1997

"The Multi Mega Book in the CAVE," VR presentation, Ars Electronica Festival 97: Flesh Factor, Linz, Sept. 1997

"The Multi Mega Book in the CAVE," VR presentation, *Electric Garden*, SIGGRAPH 97, Los Angeles, July 1997

"New American Film and Video Series," Video, Whitney Museum of Art, New York, April 1996

"Recent Experimental Feminist Video," Video, 911 Media Arts Center, Seattle, April 1995

"Festival International de Video Cidade de Vigo," Video, Vigo, Jan/Feb 1995

"Battling the Heat: Blackfeet Women Firefighters," Radio, *Horizons*, National Public Radio, Nov. 1994

"Uh-Oh," Video, The New York Film Festival, Lincoln Center, New York, Oct 1994

"Blackfeet Fire-women," Radio, *Woman's Hour*, BBC's, radio 4, Aug 1994

"Retrospective," Video, American Film Institute, Washington, Feb 1994

"Uh-Oh," Video, *Video Premieres*, Museum of Modern Art, New York, Jan 1994

"Retrospective," Video, *Lookout Festival*, Downtown Community Television, New York, Nov. 1993

"The Bus Stops Here," Video, N.A.M.E. Gallery Chicago, Dec 1992

"Videos on the Self," Finnish National Gallery, Helsinki, Finland Sept. 1992

"The Bus Stops Here," Video, *Independent Focus*, Thirteen/WNET, New York, July 1991

"The Feminist I," Video, The Brooklyn Museum, New York, March 1990

"Child," Video, The Kitchen, New York, Jan 1990

"The Essayistic in Film and Video," Los Angeles Contemporary Exhibitions, Los Angeles March/April 1989

"The Kitchen Screen," Channel L cablecast, New York, April 1988

## Publications

Anstey, Josephine, "Agency and the Emotion Machine," Proceedings of International Conference on Virtual Storytelling, Strasbourg, France, Nov30-Dec2, 2005

Anstey, Josephine, "Agents in Love: On the Use and Construction of Emotional Agents in VR," Intelligent Agent Magazine, Vol 5 #1 and Proceedings of HCI International/VR International Conference, Las Vegas, NE, July22-27, 2005

Shapiro, Stuart C., Josephine Anstey, David E. Pape, Trupti Devdas Nayak, Michael Kandefer, & Orkan Telhan, "MGLAIR Agents in Virtual and other Graphical Environments", Proceedings of the Twentieth National Conference on Artificial Intelligence (AAAI-05), AAAI Press, Menlo Park, CA, 2005, 1704-1705.

Shapiro, Stuart C., Josephine Anstey, David E. Pape, Trupti Devdas Nayak, Michael Kandefer, & Orkan Telhan, "The Trial The Trail, Act 3: A Virtual Reality Drama Using Intelligent Agents," In R. Michael Young & John Laird, Eds., Proceedings of the First Annual Artificial Intelligence and Interactive Digital Entertainment Conference (AIIDE-05), AAAI Press, Menlo Park, CA, 2005, 157-158.

Shapiro, Stuart C., Josephine Anstey, David E. Pape, Trupti Devdas Nayak, Michael Kandefer, Orkan Telhan, "MGLAIR Agents in a Virtual Reality Drama, Technical Report 2005-08," Department of Computer Science & Engineering, University at Buffalo, Buffalo, NY, March 30, 2005.

Dolinsky, Margaret, Josephine Anstey, Dave Pape, Julieta Aguilera, Helen-Nicole Kostis, Daria Tsoupiakova. " Collaborative Virtual Environments Art Exhibition", Stereoscopic Displays and Virtual Reality Systems XII, Proceedings of SPIE-IS&T Electronic Imaging, SPIE Vol. 5664, January 2005.

Anstey, Josephine , Dave Pape, Stuart C. Shapiro, Orkan Telhan and Trupti Devdas Nayak, "Psycho-Drama in VR," Proceedings of The Fourth Conference on Computation Semiotics (COSIGN 2004), University of Split, Croatia, 2004, 5-13

Anstey, Josephine, "Writing a Story in Virtual Reality", in Eloquent Images: Word and Image in the Age of New Media. Mary E. Hocks and Michelle R. Kendrick eds. MIT Press, Cambridge, MA 2003, pp 283-304

Anstey, Josephine, Dave Pape, Stuart C. Shapiro, Vikranth Rao, "Virtual Drama with Intelligent Agents", in the proceedings of the Ninth International Conference on Virtual Systems and Multimedia (VSMM 2003), Hybrid Reality: Art, Technology and the Human Factor, Montreal, Canada, Oct 15-17 2003, pp 521-528

Pape, Dave, Josephine Anstey, Margaret Dolinsky, Edward J. Dambik, "Ygdrasil - a framework for composing shared virtual worlds", Future Generation Computing Systems, Volume 19, Number 6, August 2003, Elsevier Press, pp 1041-1049



Pape, Dave, Josephine Anstey, "Falling Over You: Interactive Wall", in SIGGRAPH 03, Sketches & Applications, San Diego, CA, July 27-31 2003

Anstey, Josephine, Dave Pape, "The Trial The Trail: Building a VR Drama" in the proceedings of TIDSE 2003, 1st International Conference on Technologies for Interactive Digital Storytelling and Entertainment, Darmstadt, Germany, March 24 - 26, 2003 pp 394-402

Anstey, Josephine, Dave Pape, "Scripting the Interactor: An Approach to VR Drama" in the proceedings of the Fourth Creativity and Cognition Conference an ACM SIGCHI Conference, Loughborough University, UK, Oct 13-17, 2002

Pape, Dave, Josephine Anstey, Greg Dawe "A Low-Cost Projection Based Virtual Reality Display" The Engineering Reality of Virtual Reality, 2002, San Jose, CA, 24 Jan 2002

Anstey, Josephine, Dave Pape, "The Provoking Thing: A VR Relationship" in the Technical Report of Emotional and Intelligent II: The Tangled Knot of Social Cognition, Papers from the 2001 AAAI Fall Symposium, North Falmouth, MA, 2-4 Nov 2001

Pape, Dave, Josephine Anstey, Bryan Carter, Maria Roussou, Tim Portlock, "Virtual Heritage at iGrid 2000" in the Proceedings of INET 01 The Internet Global Summit, Stockholm, Sweden, 5-8 June 2001

Pape, Dave, Sarita D'Souza, Josephine Anstey, Tom DeFanti, Maria Roussou, Athanasios Gaitatzes "Shared Miletus: Towards a Networked Virtual History Museum" in the Proceedings of the International Conference on Augmented, Virtual Environments and Three-Dimensional Imaging, Mykonos, Greece, 30 May -1 June 2001.

Anstey, Josephine, "The User Knows Best: refining a VR Interactive Fiction Project" in the Proceedings of ISEA 2000, 10th International Symposium on Electronic Art, Paris, France, 7-10 December, 2000

Anstey, Josephine, Dave Pape, "Being There: Interactive Fiction in Virtual Reality" in the Proceedings of Consciousness Reframed 3, Newport, Wales, UK, 24-26 August 2000

Anstey, Josephine, Dave Pape, Dan Sandin, "The Thing Growing: Autonomous Characters in Virtual eality Interactive Fiction" in the Proceedings of IEEE Virtual Reality 2000, New Brunswick, NJ, March 18 - 22, 2000

Anstey, Josephine, Dave Pape, Dan Sandin, "Building a VR Narrative," in the Proceedings of SPIE Vol 3957 Stereoscopic Displays and Virtual Reality Systems VII (The Engineering Reality of Virtual Reality 2000), San Jose, CA, 28 January 2000.

Anstey, Josephine, Dave Pape, "The Thing Growing" Ylem Newsletter, July/August 1999, pp. 5-6

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Pape, Dave, Josephine Anstey, Mike Bogucki, Greg Dawe, Tom DeFanti, Andy Johnson, Dan Sandin, "The Immersadesk 3 - Experiences With A Flat Panel Display for Virtual reality." In the Proceedings of the 3<sup>rd</sup> International Immersive Projection Technology Workshop, Stuttgart, Germany, May 10 - 11, 1999.

Anstey, Josephine, "Are you Waving or Drowning? Art, Interaction, Manipulation and Complexity" Feature Article in Leonardo Electronic Almanac, Vol. 6 # 11, Dec 17, 1998

Pape, Dave, Tomoko Imai, Josephine Anstey, Maria Roussou, Tom DeFanti, "XP: An Authoring System for Immersive Art Exhibitions" In the Proceedings of the Fourth International Conference on Virtual Systems and Multimedia, Gifu, Japan, Nov 18-20, 1998.

Anstey, Josephine, Dave Pape, "The Thing Growing." Info War Catalog, Ars Electronica Festival '98 Linz, September 1998.

Anstey, Josephine, "We Sing the Body Electric: Imagining the Body in Electronic Art." Feature Article in Leonardo Electronic Almanac, Vol. 6 # 4, May 15, 1998

Anstey, Josephine, Dave Pape, "Animation in the CAVE" Animation World Magazine. Vol 3, No1. April 1998.

Anstey, Josephine, Alan Cruz, Soyon Park, Joe Jeffrey Trimmingham, "De Minderheid Voorbij?," Ruimte Kunstmagazine, jaargang 13, Amsterdam, April 1996

Anstey, Josephine, "The House of Nishime," The Southern Anthology, Lafayette, LA 1996, pp. 111-125

Anstey, Josephine, "Dwayne Loves Johnny Coggio," Chelsea 59, Chelsea Associates Inc., New York, NY 1995, pp. 71-97

Anstey, Josephine, "Interview with Claudine Booth: Black Cable TV," The Squealer, Buffalo NY March 1987, and FX: Women's Film and Video Bulletin, London, Spring 86,

Anstey, Josephine, "Review of "True Love and perfect Union: The Feminist Reform of Sex and Society," by William Leach," Studies in History 1982-83, SUNY, Buffalo NY, 1983

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## Selected Reviews

McMahan, Alison, "Immersion, Engagement and Presence," Video Game Theory Reader, Eds. Mark J.P. Wolf and Bernard Perron, Routledge, New York, 2003

Sherman, Bill, "Narrative: Immobile Versus Interactive," Understanding Virtual Reality, Morgan Kaufman, San Francisco, 2003

Donovan, Patricia, "Avatars, EVL and ghosts," The Reporter, University at Buffalo Vol 33, No. 3, November 2001

Robertson, Barbara, "Immersed in Art," Computer Graphics World, Vol 24, No. 11, November 2001

Chris, Cynthia, "Girls on the Re-make," AfterImage, Vol 28, No. 5, March/April 2001

Mahoney, Diana, "Interactive Fiction," Computer Graphics World, Vol 24, No. 2, February 2001

Neuhaus, Wolfgang, "Die Vernetzung der Fiktionen," Telepolis: Magazin der Netzkultur, 23 Nov 2000

Sacristan, Alejandro, "MediaArtech 1999," PCMania, No 83, September 1999, Madrid,

Sacristan, Alejandro, "EVL, La Meca de la Realidad Virtual en Estados Unidos," PCMania, Segunda Epoca, Año IX, No 6, Madrid, pp 92-94

Scanlon, Joe, "Let's Play Prisoners," freize, Issue 30, Sept/Oct 1998 pp. 60-76

Straayer, Chris, Deviant Eyes, Deviant Bodies, Columbus University Press, New York, 1996, pp. 121-124

Horrigan, Bill, "Sadie Benning or the Secret Annex," Art Journal, College Art Association, Winter 1995, p. 27

Taubin, Amy, "Voice Choice," The Village Voice, February 1, 1994

Liz Kotz, "Anything But Idyllic: Lesbian filmmaking in the 1980s and 1990s." Sisters, Sexperts, Queers: Beyond the Lesbian nation, Arlene Stein, editor, Penguin Books, New York, NY 1993

Badley, Jessica, "Doubling Narratives: Dereliction and Desire in Julie Zando's Let's Play Prisoners." CineAction, No 30, Winter 1992

Dargis, Manohla. "Avant-Guarde Camp," The Village Voice, Sept 8, 1992

Tamblyn, Christine, "Monitoring the Vital Signs: The American Film Institute Video festival." Visions Art Quarterly, Vol. 5, # 2, Spring 1991

Taubin, Amy, "Body Electric: Video Art at the Whitney Biennial," The Village Voice, April 30, 1991

Taubin, Amy, "The Deep: Lures and No Exits," The Village Voice, Nov 13, 1990

Tamblyn, Christine, "The River of Swill: Feminist Art, Sexual Codes and Censorship," AfterImage, Oct 1990

Dargis, Manohla, "The Prisoners of Zando," The Village Voice, Nov 7, 1989

Chris, Cynthia, "Girlfriend," AfterImage, April 1989

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# Dave Pape

## Education

- 2001 Ph.D. Electrical Engineering & Computer Science, University of Illinois at Chicago  
Dissertation: "Composing Networked Virtual Environments"
- 1990 M.S. Computer Science, Rensselaer Polytechnic Institute
- 1988 B.S. Computer Science, Rensselaer Polytechnic Institute (summa cum laude)

## Employment

- 8/03-present Department of Media Study, University at Buffalo. Assistant Professor
- 8/02-8/03 Department of Media Study, University at Buffalo. Research Professor  
Lecturing on computer graphics and virtual reality. Created commodity-PC-based virtual reality studio.  
Producing VR and interactive graphics works.
- 1/01-7/03 Freelance consultant  
Virtual reality software development for artists and museums, and custom visualization production.
- 8/94-7/01 Electronic Visualization Laboratory, UIC. Research Assistant  
Developed and maintained software for CAVE application programming. Created various technical and artistic CAVE applications. Assisted in development of projection-based virtual reality displays. Taught seminars in VR programming.
- 8/97-9/97 Ars Electronica Center, Linz, Austria. Artist in Residence  
Production work for Franz Fischnaller's *Multi-Mega Book in the CAVE*.
- 8/93-5/94 EECS Department, UIC. Teaching Assistant  
Taught recitation classes for Introduction to Programming Languages.
- 9/86-8/96 NASA/Goddard Space Flight Center. Computer Engineer  
Worked in Scientific Visualization Studio, creating visualizations for earth and space scientists at Goddard. Also worked in high performance computing branch, on support software for MPP and MasPar supercomputers.
- 9/88-5/90 Computer Science Department, Rensselaer Polytechnic Institute. Teaching Assistant  
Grader for Compiler Design and Fundamental Structures of Computer Science.

## Honors & Awards

- 1997 Foreign Title Award in Theater and Exhibition, Multimedia Grand Prix '97 (Tokyo) for *Multi-Mega Book in the CAVE*
- 1993-1995 UIC University Fellowship
- 1993 NASA/GSFC Exceptional Achievement Award
- 1993 NASA/GSFC Space Data and Computing Division Peer Award
- 1989 2nd place team, ACM National Scholastic Programming Contest
- 1987 Member Pi Mu Epsilon honorary society.

## Grants

"Virtual Drama with Intelligent Agents", UB IRCAF grant, Co-PI, 11/2003 - 10/2004.

"Enhancing Crystal Structure Determination through Data Mining, Collaborative Environments, and Grid Computing", NSF ITR - Division of Computer & Communication Foundations, Co-PI, 7/2002 - 5/2006.

## Virtual Reality / Interactive Works / Installations

Art Flying In and Out of Space - with Jackie Matisse; VR, 2005

exhibited at: *New Art Volant*, Zone: Chelsea (New York, NY, 26 May - 24 June 2005)

A Bit of Handwaving - VR, 2005

exhibited at: *VR MicroTheatre*, Buffalo infringement Festival (Buffalo, NY, 4-6 August 2005)

The Trial The Trail - with Josephine Anstey; VR, in-progress

exhibited at: *VR MicroTheatre*, Buffalo infringement Festival (Buffalo, NY, 4-6 August 2005)

Networks, Art, and Collaboration (University at Buffalo, Buffalo, NY, 24-25 April 2004)

Hallwalls Contemporary Art Center (Buffalo, NY, 7-21 June 2003)

The Virtual and the Concrete (Buffalo, NY, 3-4 May 2002)

Crossing [Digital] Boundaries, A Digital Media Symposium (Buffalo, NY, 20 April 2002)

Theatrum Orbis Terrarum - real-time graphics installation, 2003

exhibited at: *Depth Cues*, Squeaky Wheel (Buffalo, NY, 19 April 2003)

Falling Over You - with Josephine Anstey; interactive installation, 2003

exhibited at: Interactive Space for Families, Albright Knox Art Gallery (Buffalo, NY, 1 Feb - 20 Apr 2003),  
in conjunction with "Frank Moore: Green Thumb in a Dark Eden"

PAAPAB - with Josephine Anstey; networked VR, 2001

exhibited at: Engineering Reality of Virtual Reality (San Jose, CA, 20 January 2005)

7th Symposium on Virtual Reality (Sao Paulo, Brazil, 22 October 2004)

Networks, Art, and Collaboration (University at Buffalo, Buffalo, NY, 24-25 April 2004)

Engineering Reality of VR, SPIE Photonics West (San Jose, CA, 22 January 2004)

Hallwalls Contemporary Art Center (Buffalo, NY, 7 June 2003)

Stockholm ArtFair (Stockholm, Sweden, 6-9 March 2003)

en.red.ando's III One Day Conference (Barcelona, Spain, 31 January 2003)

Mediaterra 2002 (Athens, Greece, 9 December 2002)

iGrid 2002 (Amsterdam, The Netherlands, 23-26 September 2002)

Pier Pleasure (Buffalo, NY, 19 July 2002)

Immedia 2002 (Ann Arbor, MI, 8-18 February 2002)

Digital Frontier: The Buffalo Summit (Buffalo, NY, 2-3 November 2001)

Chicago Artists' Month - Alternate Currents (Chicago, IL, 27 October 2001)

Ars Electronica Festival 2001 (Linz, Austria, 1-6 Sep 2001)

publicity: "Immersed in Art", *Computer Graphics World*, Nov 2001.

Shared Miletus - with Josephine Anstey, Maria Roussou; VR, 2000

exhibited at: *iGrid 2000* Research Exhibit, INET 2000 (Yokohama, Japan, 18-21 July 2000)

Historiae Naturalis - VR, 1999

in permanent collection of Ars Electronica Center, Linz, Austria

exhibited at: Ars Electronica Festival '99 (Linz, Austria, 9 Sep 1999)

*Electronic Schoolhouse*, SIGGRAPH '99 (Los Angeles, CA, 8-13 Aug 1999)

*Second Nature*, Ukrainian Institute of Modern Art (Chicago, IL, 13 May 1999)

The Thing Growing - with Josephine Anstey; VR, 1998-2000

exhibited at: *VR MicroTheatre*, Buffalo infringement Festival (Buffalo, NY, 4-6 August 2005)  
Hallwalls Contemporary Art Center (Buffalo, NY, 7-21 June 2003)  
Mediaterra 2002 (Athens, Greece, 9 December 2002)  
Digital Frontier: The Buffalo Summit (Buffalo, NY, 2-3 November 2001) [video documentation]  
*The Adventure of CAVE*, NTT InterCommunication Center (Tokyo, Japan, 22 Jun - 29 Jul 2001)  
*Electronic Visualization Event 5 [EVE 5]* (Chicago, IL, 1-3 Mar 2001)  
immedia 1901 (Ann Arbor, MI, 8-18 Feb 2001)  
Dan Sandin - Visiting Artist Lectures, Santa Fe Art Institute (Santa Fe, NM, 6-11 Apr 2000)  
Josephine Anstey MFA show (Chicago, IL, 9-10 Mar 2000)  
Athens School of Fine Arts Multi-Media Seminar (Athens, Greece, Spring 2000)  
immedia 2000 (Ann Arbor, MI, 18-25 Feb 2000)  
Ars Electronica Festival '99 (Linz, Austria, 9 Sep 1999)  
*Electronic Schoolhouse*, SIGGRAPH '99 (Los Angeles, CA, 8-13 Aug 1999)  
Mediartech '99 Virtuality & Interactivity II (Florence, Italy, 26-30 May 1999)  
*Second Nature*, Ukrainian Institute of Modern Art (Chicago, IL, 13 May 1999)  
Digital Salon (New York, NY, Nov 1998) [video documentation]  
*Digital Pavilions*, SIGGRAPH '98 (Orlando, FL, 19-24 Jul 1998)  
Electronic Fields (Chicago, IL, Apr-May 1998) [video documentation]  
*After Hours*, Walker Art Center, (Minneapolis, MN, Apr 1998)  
publicity: "Interactive Fiction", *Computer Graphics World*, Feb 2001; "Die Vernetzung der Fiktionen",  
*Telepolis: Magazin der Netzkultur*, 23 Nov 2000; "EVL, La Meca de la Realidad Virtual en  
Estados Unidos", *PCMania*, April 2000; "Mediartech 1999", *PCMania*, Sep 1999

Siemens Mobile Workshop - networked VR, 1997

exhibited at: Global Village (Vienna, Austria, 1998)  
Siemens Conference, 150th Anniversary Expo (Berlin, Germany, 13 Oct 1997)

Vandalism - VR, 1996

in permanent collection of Ars Electronica Center, Linz, Austria  
exhibited at: Total Museum Conference '96 (Chicago, IL, October 1996)  
Ars Electronica Festival '96 (Linz, Austria, September 1996)  
*Digital Bayou & The Bridge*, SIGGRAPH '96 (New Orleans, LA, August 1996)  
publicity: still images appear in Sherman & Craig - Understanding Virtual Reality (Morgan Kaufmann,  
2002); *Tietoyteys* technology magazine (Finland, Feb 1998)

Crayoland - VR, 1995

in permanent collection of Ars Electronica Center, Linz, Austria  
exhibited at: *VR MicroTheatre*, Buffalo infringement Festival (Buffalo, NY, 4-6 August 2005)  
The Trial The Trail user tests, Hallwalls (Buffalo, NY, 7 June 2003)  
SciTech Museum (Aurora, IL, 2003)  
*Immersive Virtual Reality* presentation, Vassar College (Poughkeepsie, NY, 22 November 2002)  
ARSTBox demo, SIGGRAPH 2002 *Emerging Technologies*, (San Antonio, TX, 21-26 July 2002)  
*Zukunftszentrum Innsbruck* opening (Innsbruck, Austria, Mar 2002)  
Singapore Science Center (Singapore, 2002)  
*Tech Town*, Illinois State Fair (Springfield, IL, Aug 2000)  
NLNAR booth, EDUCAUSE National Meeting (Long Beach, CA, 26-29 Oct 1999)  
SGI booth, South African Computer Faire & Bexa (Johannesburg, South Africa, May 1996)  
*Electronic Visualization Event 4*, University of Illinois at Chicago (Chicago, IL, May 1995)  
non-interactive installation version ("Dreamscape Theater") created for *Brain: The World Inside Your Head* exhibit,  
shown at: Museo Tecnológico (Mexico City, Mexico, 14 October 2004 - 1 May 2005)  
Union Station Science City (Kansas City, MO, 22 May - 6 September 2004)  
St. Louis Science Center (St. Louis, MO, 31 January - 2 May 2004)



Detroit Science Center (Detroit, MI, 27 September 2003 - 4 January 2004)  
 NY Hall of Sciences (New York, NY, 24 May 2003 - 7 September 2003)  
 Indiana State Museum (Indianapolis, IN, 25 January 2003 - 4 May 2003)  
 Great Lakes Science Center (Cleveland, OH, 5 October 2002 - 5 January 2003)  
 SciTrek (Atlanta, GA, 1 June - 15 September 2002)  
 Oregon Museum of Science and Industry (Portland, OR, 26 January - 5 May 2002)  
 Smithsonian Institution (Washington, DC, 1 July 2001 - 6 January 2002)  
 video documentation included in: SIGGRAPH Video Review Issue 127  
 SIGGRAPH '98 Electronic Art and Animation CD-ROM  
 video documentation shown at: *Cyberville Pixellary*, St. Louis Science Center (St. Louis, MO, Apr-May 2000)  
*Metropolis*, TVE television network (Spain, October 1998)  
*Computer Animation Festival*, SIGGRAPH '98 (Orlando, FL, 19-24 Jul 1998)  
*Electronic Fields* (Chicago, IL, Apr-May 1998)  
 publicity: still images appear in Sherman & Craig - *Understanding Virtual Reality* (Morgan Kaufmann, 2002); Preece, Rogers, & Sharp - *Interaction Design* (Wiley, 2002); *Science* (27 Mar 1998); *Tietoyteys* (Finland, Feb 1998); *Communications of the ACM* (Nov 1997); *Der Standard* (Vienna, 19 Sep 1996); "Life in the Virtual World", *MacUser* (May 1996)  
 Louisville Courier-Journal, 8 Nov 1997 (demo for Mikhail Gorbachev at Indiana University)  
 obvious basis for "Crayon World" in Richard Powers' novel *Plowing the Dark*, 2000

#### Chicago Mercantile Exchange - VR, 1995

architectural walkthrough application, developed for redesign of Mercantile Exchange trading floor  
 exhibited at: Internet 2 Spring Members Meeting (Washington, DC, 14-16 April 1998)  
 Illinois Technology Leadership Workshop (Chicago, IL, 10 January 1998)  
 publicity: "Broadband's office hours", Chicago Tribune, 13 Dec 1999, page C1. "Virtual spelunkers' reality", USA Today (Money), 3 Nov 1998; "Illinois' Internet edge", Chicago Sun-Times, 14 Dec 1997.

#### JASON IV Real-Time Visualization - 1993

submarine visualization tool used in live broadcasts of JASON Project expedition to Sea of Cortez  
 video documentation included in SIGGRAPH Video Review Issue 93; shown at SIGGRAPH '93 Small Animation Theater (Anaheim, CA, 1-6 Aug 1993)  
 virtual reality demo version shown at SIGGRAPH '94 VROOM (Orlando, FL, 24-29 Jul 1994)  
 publicity: "The Small Animation Theaters", *Pixel Vision*, No. 11, 1994.

### **Collaborations**

#### Kites Flying In and Out of Space - by Jackie Matisse; VR, 2003-4

my role: software architect, programmer  
 exhibited at: Engineering Reality of Virtual Reality (San Jose, CA, 20 January 2005)  
 7th Symposium on Virtual Reality (Sao Paulo, Brazil, 22 October 2004)  
 Nicephore Days (Chalon-sur-Saone, France, 20-23 November 2003)

#### EVL: Alive on the Grid - by Dan Sandin, et al; networked VR, 2001

group show of VR artworks  
 my role: software architect, co-author of one piece (PAAPAB)  
 exhibited at: Digital Frontier: The Buffalo Summit (Buffalo, NY, 2-3 November 2001)  
 Chicago Artists' Month - Alternate Currents (Chicago, IL, 27 October 2001)  
 Ars Electronica Festival 2001 (Linz, Austria, 1-6 Sep 2001)

#### Stranggusanlage - VAI Trainingssimulator - by Ars Electronica FutureLab; VR, 2000

virtual reality industrial training simulation  
 my role: VR programmer



Virtual Harlem - by Bryan Carter, et al; networked VR, 2000

my role: software architect, programmer

exhibited at: CyberRhythms: Black Innovations in Technology, Museum of Science & Industry (Chicago, IL, 17 January - 2 March 2003)

*The Adventure of CAVE*, NTT InterCommunication Center (Tokyo, Japan, 22 Jun - 29 Jul 2001)

Marketing Opportunities in Black Entertainment [MOBE] 2000 (Chicago, IL, 30 Sep 2000)

*iGrid 2000*, INET 2000 (Yokohama, Japan, 18-21 Jul 2000)

Multi-Mega Book in the CAVE - by Franz Fischnaller; VR, 1997

my role: software architect, lead programmer

in permanent collection of Ars Electronica Center, Linz, Austria

exhibited at: *Fête de la Science*, Cite des Sciences, the Villette (Paris, France, October 2002)

Athens School of Fine Arts Multi-Media Seminar (Athens, Greece, Spring 2000)

Mediaterra '99 (Athens, Greece, 10-12 Dec 1999)

*Virtuality & Interactivity II*, Mediartech '99 (Florence, Italy, 26-30 May 1999)

Art Futura '98 (Seville, Spain, 8-11 Oct 1998)

*Virtuality & Interactivity*, Mediartech '98 (Florence, Italy, 26-29 Mar 1998)

Imagina '98 (Monte Carlo, Mar 1998)

Art Futura '97 (Madrid, Spain, 15-19 Oct 1997)

*Virtual Spaces*, ISEA '97 (Chicago, IL, Sep 1997)

Ars Electronica Festival '97 (Linz, Austria, Sep 1997)

*Electric Garden*, SIGGRAPH '97 (Los Angeles, CA, Aug 1997)

Mitologies - by Hisham Bizri, Maria Roussos; VR, 1997

my role: software architect, programmer

in permanent collection of Ars Electronica Center, Linz, Austria

exhibited at: Mediaterra 2002 (Athens, Greece, 9 December 2002)

Athens School of Fine Arts Multi-Media Seminar (Athens, Greece, Spring 2000)

Mediaterra '99 (Athens, Greece, 10-12 Dec 1999)

Art Futura '98 (Seville, Spain, 8-11 Oct 1998)

Ars Electronica Festival '98 (Linz, Austria, 7-12 Sep 1998)

*Digital Pavilions*, SIGGRAPH '98 (Orlando, FL, 19-24 Jul 1998)

Mediartech '98 *Virtuality & Interactivity* (Florence, Italy, 26-29 Mar 1998)

ThinkQuest '97 (Washington, DC, 20-24 Nov 1997)

*Virtual Spaces*, ISEA '97 (Chicago, IL, Sep 1997)

Maria Roussos MFA show (Chicago, IL, 1997)

## Videos / Animations

Map animations for "Seoul Train", documentary by Jim Butterworth, Aaron Lubarsky and Lisa Sleeth, 2005.

Various animations for "National Spatial Data Infrastructure", United States Geological Survey.

Various animations for "Images of Earth and Space: The Role of Visualization in NASA Science", NASA / Goddard Space Flight Center. Shown on CNN, 9 March 1996.

"Hawaii Flyby" - opening animation for JASON Project's *JASON VI: Island Earth*, Feb 1995.

"Plunge: Ocean Planet Flyby" - part of *Ocean Planet* exhibition, National Museum of Natural History, 1995-1996 (toured nationally 1996-1999). Also shown at SIGGRAPH '95 Computer Animation Festival (Los Angeles, CA, 6-11 Aug 1995); Electronic Visualization Event 4 (Chicago, IL, May 1995); Electronic Fields (Chicago, IL, Apr-May 1998). Still image included in SIGGRAPH '95 slide set.

Earth visualizations for "Earth: A New Perspective", NASA Earth Observing System, 1993. Still image included in SIGGRAPH '94 Slide Set.

"Ozone '91" - shown on Prime Time Live, 7/1/93. Included in *Imaging*, Chicago Museum of Science & Industry.

"Biosphere" - included in *Imaging* exhibit, Chicago Museum of Science & Industry.

- "Massively Parallel Computation at NASA Goddard", 1992. Shown at Supercomputing '92 Video Theater.
- "Hubble Space Telescope: Image Deblurring With a Parallel Computer" (Dave Pape, Mike Hollis, John Dorband). Shown at SIGGRAPH '92 Screening Room. Included in SIGGRAPH Video Review, Issue 82.
- "World at Night" - produced for Rio de Janeiro television, for 1992 Earth Summit. Included in *Imaging* exhibit, Chicago Museum of Science & Industry.

## Selected Publications

- Stuart C. Shapiro, Josephine Anstey, David E. Pape, Trupti Devdas Nayak, Michael Kandefer, & Orkan Telhan, "The Trial The Trail, Act 3: A Virtual Reality Drama Using Intelligent Agents". In R. Michael Young & John Laird, Eds., Proceedings of the First Annual Artificial Intelligence and Interactive Digital Entertainment Conference (AIIDE-05), AAAI Press, Menlo Park, CA, 2005, 157-158.
- Margaret Dolinsky, Josephine Anstey, Dave Pape, Julieta Aguilera, Helen-Nicole Kostis, Daria Tsoupikova. "Collaborative Virtual Environments Art Exhibition", Stereoscopic Displays and Virtual Reality Systems XII, Proceedings of SPIE-IS&T Electronic Imaging, SPIE Vol. 5664, January 2005.
- Josephine Anstey, Dave Pape, Stuart C. Shapiro, Orkan Telhan, Trupti Devdas Nayak, "Psycho-Drama in VR," Proceedings of The Fourth Conference on Computation Semiotics (COSIGN 2004), Split, Croatia, Sep 2004.
- Dave Pape, Josephine Anstey, Bill Sherman. "Commodity-Based Projection VR" Course Notes, SIGGRAPH 2004.
- Josephine Anstey, Dave Pape, Stuart Shapiro, Vikranth Rao. "Virtual Drama with Intelligent Agents", Ninth International Conference on Virtual Systems and MultiMedia, Montreal, Quebec, Canada, October 15-17, 2003.
- Dave Pape, Josephine Anstey, Margaret Dolinsky, Edward J. Dambik. "Ygdrasil - a framework for composing shared virtual worlds", Future Generation Computing Systems, Vol 19, No 6, Aug 2003, Elsevier Press.
- Dave Pape, Josephine Anstey, Greg Dawe. "A Low-Cost Projection Based Virtual Reality Display", The Engineering Reality of Virtual Reality, SPIE Stereoscopic Displays and Applications 2002, San Jose, CA, 24 January 2002.
- Josephine Anstey, Dave Pape. "The Provoking Thing: A VR Relationship", Emotional and Intelligent II, AAAI 2001 Fall Symposium, North Falmouth, Massachusetts, 2-4 November 2001.
- Dave Pape, Josephine Anstey, Bryan Carter, Jason Leigh, Maria Roussou, Tim Portlock. "Virtual Heritage at iGrid 2000", Proceedings of INET 2001, Stockholm, Sweden, 5-8 June 2001.
- Dave Pape, Josephine Anstey, Sarita D'Souza, Tom DeFanti, Maria Roussou, Athanasios Gaitatzes. "Shared Miletus: Towards a Networked Virtual History Museum", Proceedings of the International Conference on Augmented, Virtual Environments and Three-Dimensional Imaging (ICAV3D), Mykonos, Greece, 30 May 2001.
- Josephine Anstey, Dave Pape, Dan Sandin. "The Thing Growing: Autonomous Characters in Virtual Reality Interactive Fiction", Proceedings of IEEE Virtual Reality 2000, New Brunswick, NJ, 18-22 March 2000.
- Dave Pape, Josephine Anstey, Mike Bogucki, Greg Dawe, Tom DeFanti, Andy Johnson, Dan Sandin. "The ImmersaDesk3 - Experiences With A Flat Panel Display for Virtual Reality", 3rd International Immersive Projection Technology Workshop. Stuttgart, Germany, 10 - 11 May 1999.
- Dave Pape, Dan Sandin, Tom DeFanti. "Transparently Supporting a Wide Range of VR & Stereoscopic Display Devices", Proceedings of SPIE Vol. 3639 Stereoscopic Displays and Virtual Reality Systems VI (The Engineering Reality of Virtual Reality 1999), San Jose, CA, Jan 28, 1999.
- Dave Pape, Tomoko Imai, Josephine Anstey, Maria Roussou, Tom DeFanti, "XP: An Authoring System for Immersive Art Exhibitions", Proceedings Fourth International Conference on Virtual Systems and Multimedia, Gifu, Japan, Nov 18-20, 1998.
- Josephine Anstey, Dave Pape. "The Thing Growing." Ars Electronica Festival '98 catalog. September 1998.
- Dave Pape. "A Hardware-Independent Virtual Reality Development System." In IEEE Computer Graphics and Applications, Vol 16.4, July 1996, pp. 44-47.

## Presentations

Course "Commodity Based Projection VR," with Dave Pape, Bill Sherman, SIGGRAPH 2004, Los Angeles CA, August 9, 2004

Workshop "VR for Public Consumption," organized with Dave Pape, Maria Roussou, VR 2004, Chicago IL, March, 2004

Invited talk "Virtual Reality at Work and Play," with Dave Pape at Vassar College, Poughkeepsie, NY, September 12, 2003

"The Role of Computers in Media, Art and Entertainment," Speaker, Erie 1 Boces Challenge Seminar, UB, Buffalo, NY, March 18, 2003

"Cheap New Worlds: Immersive VR - an emerging platform for Artists" Panel Member, "Virtual Reality, Questioning the "Real" in Today's Virtual World," Medi@terra.02: New Platforms, Athens, Greece, Dec 6-9 2002

"Lecture and Demonstration on Immersive Virtual Reality," with Dave Pape, Vassar College, Poughkeepsie, NY, November 23rd 2002  
(first version of "Cheap New Worlds" presentation)

"Building an Affordable Projective, Immersive Display," with Dave Pape, Educators Workshop at SIGGRAPH 02, San Antonio, TX, July 21-26

"VR Seminar/Workshop" with Dave Pape, The Interactive Institute, Umeo, Sweden, June 12, 2002

"Virtual Tales: Building VR Art Projects," Crossing Digital Boundaries, A Digital Media Symposium, University at Buffalo, Buffalo, NY, April 19 - 20, 2002

"Building Immersive Environments", with Dave Pape & Maria Roussou, Workshop at MCN/CIMI, Los Angeles, CA, 24-27 October, 2001

"The CAVE and Beyond: VR Art in Museums and Galleries" with Donna Cox, Horst Hortner, Dan Sandin, Paul Sermon, Jeffrey Shaw, Panel at SIGGRAPH 2001, Los Angeles, CA, 12-17 August, 2001

"Dan Sandin Visiting Artist," Co-presenter at Sandin's VR lectures and Workshop, The Santa Fe Art Institute, Santa Fe, NM, April 5-7, 2000

"The Thing (La Cosa): Applicazione per il cave," VR Workshop, Virtuality and Interactivity, MediArtech '99, Florence, May 1999

"ImmersaDesk VR," Presentations to student groups of VR hardware and applications at the Walker Art Center, Minneapolis, April 1999

"The Thing Growing," Artist's Presentation, Ars Electronica Festival 98: Info Wars, Linz, Sept 98

"VR Workshop," Presenter at VR workshop organized by Dan Sandin and the

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Museum of Contemporary Art, at the Electronic Visualization Laboratory, UIC,  
Fall 1997

"Queer Collaboration," Panelist at the Society for Photographic Education  
Conference , Chicago, IL 1994

"Visiting Artist," Presentation of video work for the Tucson Visiting Artist  
Consortium, The Gallagher Fund, and The University of Arizona, Tucson, AZ ,  
1994

"Teaching Collectively," Presentation at the 1984 Women's Studies Conference,  
CUNY Graduate Center, NYC, 1984