

# Athomas Goldberg

[athomas@athomasgoldberg.com](mailto:athomas@athomasgoldberg.com)

<http://www.athomasgoldberg.com>

## Biography

**Athomas Goldberg** was most recently the Founder, President and Chief Technology Officer for Improv Technologies, Inc, where he led a team of 40 people in software development, sales, marketing and business development and helped raise \$8 million in private equity financing. In addition, Mr. Goldberg was the chief software architect and principal inventor for Improv's commercially released products: *Cirquet*, *Orchestrate3D* and *Catalyst*.

Before forming Improv Technologies in February 1999, Mr. Goldberg was a Research Scientist at New York University's Media Research Laboratory, where, along with Professor Ken Perlin, he developed the *Improv Animation System*, a tool for creating lifelike interactive animated actors for special effects, animated films and interactive games and applications, for which he earned a patent (U. S. Patent 6,285,380: A Method and System for Scripting Interactive Animated Actors). He has presented the animation system in many published papers and performed demonstrations at numerous conferences and symposia, including ACM SIGGRAPH (94-99), INA/Imagina 99, Autonomous Agents 98, SIGCHI 96, Hypertext 96, Lifelike Computer Characters (94-96) and the American Association for Artificial Intelligence's Symposium on Interactive Story Systems.

His work at NYU has been described in numerous magazines, newspapers and television programs and has been featured in a number of books including "Digital Illusions" edited by Clark Dodsworth for Addison-Wesley, "The Interactive Book" by Celia Pearce for Macmillan Technical Publishing, "Hamlet on the Holodeck" by Janet Murray for The Free Press and the new edition of "The Animation Book" by Kit Laybourne for Three Rivers Press, a division of Crown Publishing.

Prior to his work at NYU, Mr. Goldberg spent several years as an Illustrator, an Off-Broadway theatrical lighting and set designer and a multimedia installation and performance artist during which time he studied painting at the Art Students League in New York and L'Ecole Albert Defois in France.

Before beginning his professional career, Mr. Goldberg studied Film and Television Production at NYU's Tisch School of the Arts during which time he also worked for Edwin Schlossberg Inc. assisting in the development and testing of large-scale multi-user interactive games and applications.

## Commercial Projects

*2001 - 2002*

### **Cirquet** – Distributed Application Framework

Developed software architecture along with core APIs for this peer to peer distributed application framework designed to enable the development, deployment and management of large scale distributed applications. Described in by CRN Test Center as "one distributed web services platform with the features and architecture to challenge Microsoft's .Net"

*1999 - 2000*

### **Orchestrate3D** – Animation Production Tools

Developed software architecture and user interface design, as well as core APIs for this non-linear animation production pipeline application, based on technology patented while working as a Research Scientist at New York University's Media Research Lab. Orchestrate3D was a winner of Computer Graphics World's 2000 Innovation Awards.

## **Catalyst – Game Development Environment**

Defined feature requirements and developed patented non-linear animation technology used in the creation of this full-featured 3D game environment which according to GameInformer Magazine, will “Shatter Your Perception of Reality and Scatter the Broken Shards in the Wind” Catalyst was recently used in the creation of *Jedi Knight II: Outcast* for Microsoft’s XBox™ and Nintendo’s GameCube™.

## **Academic Projects**

*1994 - 1999*

### **The Improv Project – Real-Time Interactive Animation**

Led a team of research scientists, graduate students and faculty in the development of this behavior-driven real-time character animation system. The Improv Animation System has been featured in numerous conferences & symposia, academic journals, and books, as well as magazines, newspapers and television media. See relevant sections below for further information.

*1993 - 1999*

### **PAD – Zoomable User Interfaces**

Worked with research scientists to define requirements for zoomable user interfaces. Developed PADCAD, a prototype application of PAD to computer-aided design, to illustrate how zoomable user interfaces could be used to organize and manage large-scale projects involving hundreds of disparate but interrelated pieces of information.

## **Open Source Projects**

*2001-2002*

### **Project JXTA – Peer to Peer Computing**

Initiated and currently leading five new projects within Project JXTA in the areas of peer authentication, enterprise integration, reliable multicast, software maintenance, and distributed data / synchronization and contributed significant code and bug fixes to the JXTA platform.

## **Art, Design & Performance Projects (Partial List)**

*1999*

### **M.C. Leon – Live Performance by Synthetic Actors**

Produced this interactive performance for the SIGGRAPH '99 Electronic Theater in which a synthetic actor performs as Master of Ceremonies for the event, commenting on the films and responding to audience reactions. Wrote animation software and tools for the performance and worked with director and animator to develop interactive content.

*1998*

### **Sid and the Penguins – Live Performance by Synthetic Actors**

Artistic Director for this live performance by a troupe of virtual actors for SIGGRAPH '98 Electronic Theater. Integrated models & animations with personality-driven behavioral scripts and high-level directions. Developed interactive virtual audio and cinematography techniques for use within the performance.

### **Studies in Improvisational Sculpture – Dynamic Virtual Sculpture**

Conceived and created this piece for the SIGGRAPH '98 Web3D Roundup as a study of how behavioral animation techniques could be applied to a purely visual space in a non-realistic 3D environment. In this piece, simple geometric constructions are layered, blended and combined to create constantly changing patterns of shape, color and movement.

### **Willy - Live Performance by Synthetic Actor/Musician**

Worked with researchers in the NYU Music Technology Department to develop this interactive musical performance in which a virtual saxophone player improvises music and movement in response to a jazz piano player. This piece was presented in a series of performances at Lincoln Center in New York as well as the ISEA '98 Conference and ICMA.

*1996*

### **Botanica Virtual / Spirits of the Bayou – Immersive 3D Environment**

Wrote and directed this interactive room-sized installation for the SIGGRAPH '96 Digital Bayou in which a single-user, wearing a stereoscopic carnival mask enters a virtual environment populated by mysterious bayou denizens while a larger audience watched on a projection screen. The performance combined real-time interactive animation and sound effects, spatialized audio as well as voice recognition and synthesis. Wrote behavioral software and character scripts, designed the physical and virtual environments and a number of the animated characters and supervised the creation of the all elements in the production.

*1995*

### **Interacting with Virtual Actors – Immersive 3D Environment**

Created the characters and environments and developed the behavioral software for this SIGGRAPH '95 presentation in which audience members interacted with virtual actors in a variety of ways. Using voice recognition, participants could play "Simon-Says" with one character, while passive motion tracking made it possible for them to turn themselves into virtual bats, flapping their arms to fly around a castle inhabited by interacting Improv characters.

*1994*

### **Danse Interactif – Real-Time Virtual Dancer**

Creative consultant for this SIGGRAPH '94 Electronic Theater presentation in which a virtual dancer is choreographed in real-time through high-level direction, while a performer improvises on the piano.

### **Media Research Lab – Logo and Web Design**

Designed and implemented the original MRL logo and web site. The logo was used on all print and digital collateral from 1994 to 1999. The web site design was used until 1998.

*1992 - 1993*

### **The Works on Shirts Project – Multimedia Performance**

Conceived, curated and managed this exhibition/performance in which eighteen artists, working in various media, produced twenty-one works of art on the backs of white cotton dress shirts. The shirts were then worn into five of New York's Major art museums: The Metropolitan Museum of Art, The Museum of Modern Art, The Whitney Museum, The Guggenheim Museum and the Guggenheim Soho. In each museum, the participants entered individually and then, at a pre-designated time, came together to present a gallery exhibition of the works. The piece was conceived to challenge the notion of Art as something limited to those works that appear on museum walls, and invited people to look beyond these conventions to alternate forms of representation and presentation.

### **Success Out of Reach: An Evening of Music And Angst – Mixed Media Installation**

Inspired by a full page ad in the New York Times for Forbes Magazine posing the question, "Why do we feel so bad when we have it so good?" that appeared the same week as the riots in Los Angeles, this piece combined newspapers headlines with suspended ladders and platforms of various heights to illustrate the reality of so many Americans within the decade of prosperity. Installed at the Arts at Saint Ann's in Brooklyn.

### **Bush and Quayle: Self-Portraits – Mixed Media Installation**

This piece consisted of 6' x 12' panels portraying the images of our former chief executives made up of dozens of their more memorable "misstatements" The piece was installed at the Arts at Saint Ann's and served as a backdrop for an evening of musical performances by local bands.

### **Kings County Shakespeare Company – Resident Designer**

Lighting design for *Romeo & Juliet* and lighting and set design for *Othello, the Moor of Venice* in the Prospect Park Bandshell in Brooklyn, NY. Associate artist for established Actor's Equity company involved in company development and festival planning.

### **Balinese American Fusion Dance Company – Resident Designer**

Lighting design for 1992 NYC tour of this company merging modern dance with traditional Balinese movement.

## **Writings and Publications (Partial List)**

1999

### **Improvisational Animation**

K. Perlin, A. Goldberg, Proceedings of the 1999 International Conference on Virtual Worlds and Simulation, San Francisco

1998

### **Avatars and Agents, or Life among the Indigenous Peoples of Cyberspace**

A. Goldberg, Digital Illusion, Entertaining the Future with High Technology, Clark Dodsworth Jr. (Ed.) Addison-Wesley

### **Improv Animation**

A. Goldberg, The Animation Book, Kit Laybourne (Ed.) Three Rivers Press, A Division of Crown Publishing

1997

### **Improv: A System for Real-Time Animation of Behavior-Based Synthetic Actors**

A. Goldberg, Lecture Notes in Artificial Intelligence; Vol. 1195, R. Trappl, P. Petta (Eds.)

1996

### **Improv: A System for Scripting Interactive Actors in Virtual Worlds**

K. Perlin, A. Goldberg, Computer Graphics; Vol. 29 No. 3

### **Improv: Interactive Improvisational Animation and Music**

E. Singer, C. Castiglia, S. Liao, K. Perlin, A. Goldberg, Proceedings of the International Society for the Electronic Arts (ISEA) Annual Conference, Rotterdam, The Netherlands.

### **Improvisational Animation**

K. Perlin, A. Goldberg, Proceedings of the CHI '96 Conference Companion on Human Factors in Computing Systems

1995

### **Behavioral Scripting: Method Acting For Synthetic Characters**

A. Goldberg, Working Notes of the AAAI '95 Spring Symposium on Interactive Story Systems, Stanford University, California

## **Courses & Panels (Partial List)**

*2002*

### **Digital Humans: What Roles Will They Play?**

SIGGRAPH 2002, San Antonio, Texas

*2001*

### **P2P Innovation with JXTA**

O'Reilly Peer-to-Peer and Web Services Conference, Washington, D.C

### **Innovating with 'Project JXTA': New Services and Applications**

JavaOne 2001, San Francisco, California

*2000*

### **3-D Animation Software Developments**

SCAET Digital Media Innovations Conference, Ontario, Canada

*1999*

### **3-D Web**

INA/Imagina '99 Monoco

*1998*

### **Virtual Humans: Behaviors and Physics, Acting and Reacting**

SIGGRAPH '98 Orlando, Florida

### **Characters on the Internet: The Next Generation**

SIGGRAPH '98, Orlando, Florida

### **Autonomous Agents in Entertainment**

Second International Conference on Autonomous Agents, Minneapolis, Minnesota

*1997*

### **Virtual Humans: Behaviors and Physics, Acting and Reacting**

SIGGRAPH '97, Los Angeles, California

### **Narrative Environments: Virtual Reality as a Storytelling Medium**

SIGGRAPH '97, Los Angeles, California

*1996*

### **Improv: A System for Scripting Interactive Actors in Virtual Worlds**

SIGGRAPH '96, New Orleans, Louisiana

*1993*

### **Future Muse: Art and Technology in the 21st Century**

Artists Talk On Art Panel Series, New York City, New York

## **Patents**

U.S. Patent 6,285,380: A Method and System for Scripting Interactive Animated Actors

## **Awards**

**Computer Graphics World's 2000 Innovation Award** for Orchestrate3D